

AD-A250026

**INSTALLATION RESTORATION PROGRAM
STAGE 2-1
REMEDIAL INVESTIGATION
VOLUME 3: APPENDICES B - K**

BEALE AIR FORCE BASE
MARYSVILLE, CALIFORNIA 95903-5000

CIMHILL

3840 ROSIN COURT, SUITE 110
SACRAMENTO, CALIFORNIA 95834

JANUARY 1991

DTIC
SELECT
MAY 6 1992
S B D

Prepared for

HEADQUARTERS STRATEGIC AIR COMMAND (HQ SAC/DEVC)
OFFUTT AIR FORCE BASE, NEBRASKA 68113-5001

UNITED STATES AIR FORCE
HUMAN SYSTEMS DIVISION (AFSC)
IRP PROGRAM OFFICE (HSD/YAQI)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

Best Available Copy

DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION Unclassified		1b RESTRICTIVE MARKINGS N/A	
2a SECURITY CLASSIFICATION AUTHORITY N/A		3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release. Distribution is unlimited.	
DECLASSIFICATION/DOWNGRADING SCHEDULE N/A		5 MONITORING ORGANIZATION REPORT NUMBER(S) N/A	
4 PERFORMING ORGANIZATION REPORT NUMBER(S) N/A		7a NAME OF MONITORING ORGANIZATION HSD/YAQI	
6a NAME OF PERFORMING ORGANIZATION CH2M HILL	6b OFFICE SYMBOL (If applicable)	7b ADDRESS (City, State, and ZIP Code) Brooks AFB, TX 78235-5501	
6c ADDRESS (City, State, and ZIP Code) 3840 Rosin Court, Suite 110 Sacramento, CA 95834		9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER FF33615-85-D-4535/0010	
8a NAME OF FUNDING/SPONSORING ORGANIZATION HSD/YAQI	8b OFFICE SYMBOL (If applicable)	10 SOURCE OF FUNDING NUMBERS	
8c ADDRESS (City, State, and ZIP Code) Brooks AFB, TX 78235-5501		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11 TITLE (Include Security Classification) Installation Restoration Program, Stage 2-1 Remedial Investigation, Technical Report, Beale Air Force Base, California <i>Vol 3 app-B-K</i>			
12. PERSONAL AUTHOR(S) CH2M HILL			
13a. TYPE OF REPORT FINAL	13b. TIME COVERED FROM 10/88 TO 3/91	14. DATE OF REPORT (Year, Month, Day) 1991 March 29	15 PAGE COUNT 3997
16 SUPPLEMENTARY NOTATION			
17 COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
		Beale AFB, IRP, Remedial Investigation	
19 ABSTRACT (Continue on reverse if necessary and identify by block number)			
<p>As part of the ongoing Installation Restoration Program at Beale Air Force Base, California, 24 sites of concern have been identified. During the IRP Stage 2-1 Remedial Investigation, which is the subject of this technical report, 16 of the 24 sites were investigated through sampling and analysis of environmental media. Two of the 24 sites were investigated using surface geophysics only, and 1 of the sites was the subject of records search activities only. The remaining 5 sites did not receive any IRP actions during IRP Stage 2-1.</p> <p>This technical report summarizes the activities accomplished and results obtained during IRP Stage 2-1 Remedial Investigation, through four quarterly rounds of water sampling. Included in this report are discussions of the IRP program origin and objectives, environmental setting of Beale AFB, field and laboratory investigation methods, results obtained, and recommendations for future IRP actions. Eleven appendices are included which present data and relevant information regarding Stage 2-1 activities.</p>			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a NAME OF RESPONSIBLE INDIVIDUAL Capt. Henry Thompson		22b TELEPHONE (Include Area Code) 512/536-9001 x289	22c OFFICE SYMBOL HSD/YAQI

FORM 1473, 84 MAR

83 APR edition may be used until exhausted.
All other editions are obsolete.SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

APPENDIX B
DELIVERY ORDER 0010

DATE: 88 Sep 01

STATEMENT OF WORK (SOW)

THE INSTALLATION RESTORATION PROGRAM
REMEDIAL INVESTIGATION (RI)

STAGE 2 FOR

Beale AFB, Marysville, California

I. DESCRIPTION OF WORK

1.1 Scope. The objective of the Air Force Installation Restoration Program (IRP) is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan (NCP) for those sites which pose a threat to human health and welfare or the environment. The intent is to conduct the remedial investigation and feasibility study in parallel instead of in serial fashion. The USAFOEHL/TS Handbook, Version 2.0, dated April 88 (mailed under separate cover) and the Beale AFB, CA, Stage 2 Work Plan and Quality Assurance Project Plan (QAPP) are an integral part of this task. All references in this Statement Of Work to the "Handbook" refer to the above version of the USAFOEHL/TS Handbook and imply by reference that it is provided under separate cover. The contractor shall comply with all Handbook, applicable portions of the Work Plan and QAPP requirements. Section 1 of the Handbook lists all documents that apply to this Statement of Work (SOW). The contractor shall accomplish the following actions for this stage of the IRP process at Beale AFB CA:

- a. literature search,
- b. determine public health and environmental requirements,
- c. field investigation,
- d. prepare Reports, Plans and Decision Documents.

1.2 Literature Search. Conduct a literature search to determine the geological, hydrogeological, and environmental settings for this investigation. Requirements are supplied under separate cover (see "Environmental Setting", Section II of the Report Format, contained in Section 3, USAFOEHL/TS Handbook). When gathering information for the demographic setting and conducting the well inventory, consider only those populations and wells within a three mile radius of the installation. Sources include: IRP Phase I Report, IRP Phase II Stage 1 Report, Federal and State geological agency reports, academic theses and related university research, municipality and county reports, and historical and current aerial photographs. Cite all bibliographic references reviewed, including personal communications, in the appropriate part of the report. Identify gaps in data or analyses which may prevent an adequate determination of contaminant migration patterns or other factors critical to assessing the hazard potential associated with the individual sites.

92-12230



92 5 05 052

B-1

1.3 Public Health and Environmental Requirements. Review the Data Quality Objectives developed during the previous IRP Stage and reevaluate the threat of contaminants to public health and welfare of the environment through a literature search of documents. This effort shall satisfy the requirements contained in the Superfund Amendments and Reauthorization Act (SARA) of 1986, to identify all Applicable or Relevant and Appropriate Requirements (ARARs). Sources for ARARs are listed in the Handbook, Section 2.

1.4 Field Investigation. As used in this SOW, 'field investigation' refers to the collection of all data, environmental samples, and subsequent laboratory analysis of samples. The purpose of data collection, sample collection and laboratory analysis is to determine whether any contaminants generated from installation activities are entering the environment. The field investigation is used to determine the source, extent, and migration of any identified contaminants, and the magnitude of contamination relative to ARARs and any naturally occurring or background concentrations for specific compounds. All decisions concerning any aspect of the field investigation shall be made in coordination with the USAFOEHL/TS Technical Program Manager (TPM).

1.4.1 Quality Assurance/Quality Control (QA/QC). A quality assurance/quality control (QA/QC) program shall be conducted and documented for ALL work specified in this Delivery Order. The USAFOEHL approved QA/QC program is described in the IRP Stage 2 Quality Assurance Project Plan (QAPP).

1.4.1.1 Data generated under the QA/QC program shall be used to evaluate the analytical results assembled for each site and to formulate conclusions and recommendations pertaining to the need for additional site investigations or remediation.

1.4.1.2 QA/QC requirements for chemical analyses, laboratory operations, required detection limits, field operations, sampling, sample preservation, sample holding times, equipment decontamination, and chain-of-custody are delineated in the Handbook, Section 12. Project specific QA/QC requirements, if applicable, are described in paragraph 1.4.12, Site-specific Requirements.

1.4.1.3 Annex A, Tables A-4 and A-5 specify the maximum number of field QA/QC samples allowed for each analytical parameter for the entire investigative effort. The distribution of field QA/QC samples by site, sampling round, is specified in the IRP Stage 2 Work Plan.

1.4.2 Drilling Supervision. The field investigation (including all drilling and sampling operations) shall be supervised by a registered geologist, engineering geologist, hydrogeologist or Professional Engineer certified by the State to install test wells. A detailed log of the conditions and materials penetrated during the course of the work shall be maintained by the geologist/hydrogeologist on site. Decisions on well and boring locations, well depths, screened intervals, and other well construction details shall be made collectively by the USAFOEHL/TS TPM and the supervising geologist/hydrogeologist.

1.4.3 Regulatory Requirements and Permits. All well drilling, development, purging, sampling methods, and other activities pertaining to this effort shall conform to State and other applicable regulatory agency requirements. Cite references in an appendix to the Final Report (paragraph I.1.6.1). Complete permits, applications, and other documents which may be required by local and/or State regulatory agencies for the installation of test wells. File these documents with appropriate agencies and pay all applicable permitting and filing fees.

1.4.4 Borehole Installation.

1.4.4.1 Soil Borings. Drill all borings using hollow-stem auger techniques. Conduct a maximum of fifty-five (55) soil borings, not to exceed a total of two thousand four hundred forty-five (2445) linear feet (see Annex A, Table A-1 for distribution by site). Obtain split-spoon samples (using ASTM Method D-1586) for laboratory analysis. Collect a maximum of two hundred eighty-one (281) boring samples for laboratory analysis.

1.4.4.2 Lithologic Samples. For purposes of lithologic descriptions, obtain split-spoon samples at five (5) foot intervals or less frequent as directed by the USAFOEHL/TS TPM. Perform Standard Penetration Test (SPT) and split-spoon sampling as detailed in ASTM D 1586. Monitor all split-spoon samples at the intervals specified with a photoionization meter or appropriate Organic Vapor Analyzer (OVA) and record the vapor levels detected. As often as necessary, describe the continuous drill cuttings to indicate significant changes in lithology or characteristic properties that relate to the strata penetrated. Follow the standard identification practices detailed in ASTM D-2488. Correlate the materials encountered with local geologic formations as determined from the literature search. Include observations made by the driller and hydrogeologist during drilling such as depth to water, penetration rate, drill rig behavior, and other observations that might be indicative of changes in formation characteristics. Compile all of this information into standard boring or well logs. Indicate on the logs the intervals where discrete split-spoon samples were taken and the corresponding OVA or HNu readings and SPT data.

1.4.4.3 Air Monitoring During Drilling. Monitor the ambient air during all well drilling and soil boring work with a photoionization meter or appropriate organic vapor analyzer to identify any generation of potentially hazardous and/or toxic vapors or gases. Include air monitoring results in the borehole logs. If soil encountered during borehole drilling is suspected to be hazardous because of abnormal discoloration, odor or air monitoring levels, containerize the soil cuttings in new, unused drums (a maximum of twenty-five (25) drums). (Note: Contractor is responsible for providing all necessary containers, i.e., 55-gallon drums.) Enter into the boring logs the depth(s) from which suspected contaminated soil cuttings were collected.

1.4.4.4 Soil Toxicity Sampling. Collect a maximum of twenty-five (25) composite samples, one from the contents of each drum containing well soil cuttings specified in paragraph I.1.4.4.3. Test each composite sample for the parameters specified in Table A-3 to determine if the soil cuttings must be disposed of as hazardous waste. Contractor shall also ensure that all wastes are properly marked, labeled, and containerized according to State and Federal

<input checked="" type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

NOT
SELECTED
4

Dist	Special
A-1	

regulations. Beale AFB will act as the generator and will be preparing and signing manifests and tracking the chain-of-custody for the hazardous wastes.

1.4.4.5 Water Level Measurements. Measure water levels in all boreholes after the water level has stabilized. Examine the water surface for the presence of hydrocarbons. Include this information in the borehole logs. Record soil moisture conditions (moist, wet, saturated,) in the boring log.

1.4.4.6 Sealing Boreholes. Tremie-grout all soil boreholes with a bentonite/cement slurry. The slurry shall be prepared by adding 3-5 pounds of bentonite and 6.5 gallons of clean water for each 94 pound sack of Type I Portland cement. Boreholes shall be adequately resealed from the bottom to the land surface to preclude future migration of contaminants.

1.4.4.7 Marking Borehole Locations. Permanently mark each soil boring location. Record the location on a project map for each specific site or zone, whichever is applicable.

1.4.5 Well Installation. Drill a maximum of twenty-six (26) wells for the entire installation (see Annex A, Table A-1 for distribution by site). Total footage for all wells in this task shall not exceed thirty-three hundred (3300) linear feet. Total screening for all wells in this task shall not exceed five hundred (525) linear feet.

1.4.5.1 Well Drilling. Drill all wells using air rotary, direct circulation technique. Temporary casings and/or boreholes shall be sufficiently large to provide a minimum of 3-inch annular space on all sides of the well casing and screen during well completion. Ensure wells are installed straight, plumb and centered in the borehole. Drill and describe the lithology of materials encountered as described for borings in paragraph I.1.4.4.2. Drill cuttings shall not be containerized unless visual inspection, odor, and OVA readings indicate contamination. Containerize suspected drill cuttings and test for toxicity as described in paragraphs I.1.4.4.3 and I.1.4.4.4. Avoid installing wells in depressions or areas subject to frequent flooding and/or standing water. If wells must be installed in such areas, design the wells such that standing water does not leak into the top of the casing or cascade down the annular space.

1.4.5.2 Well Casing Requirements. Construct each well with 4-inch inside diameter (I.D.), Schedule 40, PVC casing. Use threaded screw-type joints only. Glued fittings are not permitted. Flush-thread all connections. The well materials shall be certified by the National Sanitation Foundation or the ASTM.

1.4.5.3 Well Depth. Install wells at a sufficient depth to collect representative samples of aquifer quality and to intercept contaminants that may be floating or stratified in the aquifer. Wells are expected to be about 120 feet deep.

1.4.5.4 Well Screening Requirements.

a. Screen each well using 4-inch I.D., wire wrap 304 stainless steel screen having up to 0.010-inch openings. Screen opening size may be

smaller based upon borehole geology or sieve analysis of aquifer materials. Each well shall be screened across the water table into the upper part of the aquifer (about 20 feet of screen). At three sites, deeper wells shall be installed with screens entirely below the water table. Cap the bottom of the screen.

b. Screen all wells so as to collect floating contaminants and to allow for all yearly fluctuations of the water table (except for deeper wells).

c. Once the screen is in place, install the sand/gravel pack. If the formation is compatible with the screen opening size, allow the formation to collapse around the well screen. Supplement with washed and bagged, rounded silica sand or gravel with a grain size distribution compatible with the screen and the formation. Place the pack from the bottom of the borehole to two (2) feet above the top of the screen. The sand/gravel pack shall not extend into an overlying formation. Tremie a two (2) foot bentonite seal (granulated or pellets) above the sand/gravel pack. Ensure that the bentonite forms a complete seal. Grout the remainder of the annulus to the land surface with a Type I Portland cement/bentonite slurry. The slurry shall be prepared by adding 3-5 pounds of bentonite and 6.5 gallons of clean water for each 94 pound sack of Type I Portland cement. The bentonite used shall be free of additives that may affect water quality.

1.4.5.5 Well Completion. Complete all test wells using the following specifications:

a. Coordinate with the Base Point Of Contact (POC) to determine well completion (flush or projected above the ground surface) requirements.

(1) If well stick-up is of concern in an area, complete the well flush with the land surface. Cut the casing two to three inches below land surface, and install a protective locking lid consisting of a cast-iron valve box assembly. Center the lid assembly in a three (3) foot diameter concrete pad sloped away from the valve box. Ensure that free drainage is maintained within the valve box. Also, provide a screw-type casing cap to prevent infiltration of surface water. Maintain a minimum of one (1) foot clearance between the casing top and the bottom of the valve box. Clearly mark the well number on the valve box lid and well casing using an impact labeling method.

(2) If an above-ground-surface completion is used, extend the well casing two or three feet above land surface. Provide an end plug or casing cap for each well. Shield the extended casing with a steel guard pipe (sleeve) which is placed over the casing and cap and seated in a two-foot by two-foot by four-inch (2' X 2' X 4") concrete surface pad. Slope the pad away from the well sleeve. Install a lockable cap or lid on the guard pipe. Install three (3), three-inch diameter concrete-filled steel guard posts if the base POC determines the well is in an area which needs such protection. The guard posts shall be five (5) feet in total length and installed radially from each wellhead. Recess the guard posts approximately two (2) feet into the ground and set in concrete. Do not install the guard posts in the concrete pad placed at the well base. Fill each guard post with concrete. Clearly mark the well number on the well

protective sleeve exterior using paint and/or impact lettering. The base POC will specify color to blend with the paint scheme of the base.

b. All wells shall be secured as soon as possible after drilling. Provide corrosion resistant locks for both flush and above-ground well assemblies. The locks shall either have identical keys or be keyed for opening with one master key. Turn the lock keys over to the Base POC following completion of the field effort.

c. Include well completion summaries in the Final Report (paragraph I.1.11.1).

1.4.5.6 **Well Logs.** For each well, prepare a well completion log and schematic diagram showing well construction details. Lithologic descriptions and other information included in the well logs shall conform to the specifications of paragraph I.1.4.4.2.

1.4.5.7 **Well Development.**

a. Develop each well as soon as practical after well completion and grout curing with a submersible pump, bailer, vented surge block, and/or airlift method. Continue well development until the discharge water is clear and free of sediment to the fullest extent possible (i.e., turbidity less than 5 NTU). Measure the rate of water production, pH, specific conductance, and water temperature during well development and include this information in the Final Report (paragraph I.1.11.1).

b. Following well development and after water levels have stabilized, the water-yielding properties of each well shall be determined. Each new well shall be pumped, using a submersible pump, and the discharge and drawdown measured for a period of 1 to 4 hours. Using the discharge and drawdown data, a specific capacity shall be computed for each well.

1.4.5.8 **Water Level Measurements.** Measure water levels at all test wells as feet below the measuring point elevation (usually top of casing) to the nearest 0.01 foot. Report as feet above mean sea level (MSL). Measure static water levels in wells prior to well development and before all well purging preceding sampling events.

1.4.5.8.1 Before each water sampling event, measure water levels at all wells within an 8-hour period for the construction of base-wide potentiometric contour map. In addition, the contractor shall record water levels before well purging and after sampling of each well.

1.4.5.9 **Well Abandonment.** Recommend well abandonment method(s) or technique(s) which are applicable to the type of test wells installed and the geological conditions. Consider that these wells will be abandoned at some future date after the study objectives have been met. The actual process of well abandonment is not a part of this task order. Insure that the recommended method(s) is consistent with State and local well abandonment guidelines or regulations.

1.4.6 **Shallow Soil Augerings.** Conduct a maximum of eighty-four (84) shallow soil augerings using a hand or power auger (see Annex A, Table A-

1 for distribution by site). Total footage for all shallow soil augerings shall not exceed one hundred sixty-six (166). Permanently mark each location. Record the location on a project map for each specific site or zone, whichever is applicable.

1.4.7 **Surveying.** Determine by certified land surveyor the elevations and locations of all newly installed test wells, soil borings, and sampling points. This shall be a third order survey. Notch the top of the riser casing where well elevations are established. Record the positions on both project and site-specific maps. Bench marks used must have previously been established from, and be traceable to, a US Coast and Geodetic Survey (USCGS) or US Geological Survey (USGS) survey marker. Clearly identify all bench mark locations on the base map.

1.4.8 **Well and Boring Precautions.** Mark the field locations of all test wells, soil borings, and shallow soil augerings during the planning/mobilization phase of the field investigation. Consult with base personnel to minimize disruption of base activities, to properly position wells with respect to site locations, and to avoid underground utilities. Obtain written approval from the base civil engineer prior to commencement of digging or drilling operations.

1.4.9 **Well and Borehole Cleanup.** Dispose of all uncontaminated well/borehole cuttings per direction of the base civil engineer and clean the general area following the completion of each well/borehole. If approved by the base civil engineer, uncontaminated cuttings may be spread over the general area in the vicinity of the well or borehole or trucked to more suitable areas for disposal. Containerize and store cuttings suspected to be hazardous in accordance with paragraph I.1.4.4.3. Transport these drums to an accumulation point within the installation boundary designated by the Base POC. The base is responsible for ultimate disposal of contaminated soils using base resources.

1.4.10 **Geophysical Surveys**

1.4.10.1 **Magnetometer Survey.** Conduct for a maximum of one day on Site 16, one day on Site 17, one day on Site 20, and ten days on Site 22 to locate buried tanks.

1.4.11 **Sample Collection.**

1.4.11.1 **Ground and Surface Water Samples.** Collect a maximum of one hundred fifty-nine (159) groundwater and thirty-six (36) surface water samples. The maximum number of analyses for each parameter and the required analytical method is given in Table A-4, Annex A.

1.4.11.2 **Soil and Sediment Samples.** Collect a maximum of four hundred fifty-four (454) drill cuttings, soil and sediment samples. The maximum number of analyses for each parameter and the required analytical method is given in Table A-5, Annex A.

1.4.12 **Site-specific Requirements.** Perform the site-specific requirements as listed in the following subparagraphs. The field tasks shall be performed as specified below. Refer to Annex A of this SOW, Table A-1 for

the maximum number of wells, borings, soil gas, and geophysical surveys by site. Table A-2 lists water analyses by site, and Table A-3 lists soil analyses by site. All chemical analyses shall be performed in a California State certified laboratory.

1.4.12.1 Site 1. West Drainage Ditch.

a. Install a maximum of five (5) new monitoring wells. Two of these wells shall be screened into the deeper zone (less than 160 feet from land surface) (two locations are to be "paired wells"). Collect water samples from each of the new wells and one existing well quarterly for one year (four sampling rounds). Analyze these samples for the chemical parameters listed in Table A-2.

b. Collect ditch water grab samples at five (5) locations, quarterly for one year (four sampling rounds). Analyze these samples for the chemical parameters listed Table A-2. If possible, collect one sample during or immediately following a precipitation event.

c. Collect ditch sediment samples at four (4) locations. At each location, obtain samples at three points across the ditch profile. If water is present, drive tube sampler up to 2 feet in depth and retain upper and lower 6 inches. If the ditch is dry, obtain samples with a hand auger at depth of 0 to 0.5 foot and 1.5 to 2.0 feet. Analyze these samples for the chemical parameters listed in Table A-3.

1.4.12.2 Site 2. Photowaste Water Treatment Plant.

a. Collect water samples from each of the five existing wells, quarterly for one year (four sampling rounds) and analyze these samples for the chemical parameters listed in Table A-2.

b. Collect a maximum of six (6) sludge pond sediment samples, using hand augers, and analyze them for the chemical parameters listed in Table A-3.

c. Drill (2) two angled borings, using hollow-stem auger drill rig, from the edge of the ponds. Angle hole shall be approximately 30 degrees from vertical. Collect split-spoon soil samples at 10-foot intervals to a maximum of 50 feet (10, 20, 30, 40, and 50) and analyze them for the parameters listed in Table A-3.

d. Drill one (1) 50-foot-deep boring at each of two injection wells (No. 1 and No. 3), using hollow-stem augering. Collect split-spoon soil samples at 10-foot intervals to a maximum of 50 feet (10, 20, 30, 40, and 50) and analyze them for the parameters listed in Table A-3.

e. Drill one (1) 50-foot-deep boring and one (1) 25-foot boring at Injection Well No. 2 and collect split-spoon soil samples at 5, 10, 15, 20, 25, 30, 40, 50 feet for the chemical parameters listed in Table A-3.

f. Collect surface soil samples at eight locations near the photo wastewater treatment plant using hand augers. One sample from each

location shall be retained for analyses of the chemical parameters listed in Table A-3.

g. Drill one (1) boring, in an undisturbed location, to a depth of 50 feet. Collect split-spoon soil samples at 10-foot intervals (0, 10, 20, 30, 40, 50) for background characterization.

h. One soil sample showing the highest pentachlorophenol (PCP) result shall be analyzed for PCDDs/PCDFs by the method listed in Table A-3.

i. Drill one (1) monitoring well and screen in lower part of the aquifer. Collect water samples quarterly and analyze for the chemical parameters listed in Table A-2.

1.4.12.3 Site 3. Fire Protection Training Area.

a. Collect one groundwater sample from each of the five (5) existing wells, semiannually for one year (two sampling rounds), and analyze the samples for the chemical parameters listed in Table A-2.

b. Drill a maximum of five (5) hollow-stem auger borings to a depth of approximately 50 ft each. Locate two of these borings within Pit No. 2, two approximately 10 feet from the underground storage tanks, and one from the undisturbed area for background. Collect split-spoon soil samples every 10 feet to depth (0, 10, 20, 30, 40, and 50) and analyze for the chemical parameters listed in Table A-3.

c. Drill up to four (4) hollow-stem auger borings in area of previous FPTA Pit No. 1 to a depth of 20 feet. Collect split-spoon soil samples at 5 foot intervals (0, 5, 10, 15, 20) and submit only those vapors detected by field analyzers. Analyze these samples for the chemical parameters listed in Table A-3.

d. Drill one angled boring (50 feet deep) near overflow pond and collect split spoon samples at 10, 20, 30, 40 and 50 feet. Analyze for chemical parameters listed in Table A-3.

e. Collect sediment samples at three locations within the overflow pond using hand augers. Analyze these samples for the chemical parameters listed in Table A-3.

f. Install one (1) new well and collect one groundwater sample semiannually for one year (two sampling rounds). Analyze the samples for the chemical parameter listed in Tables A-2.

1.4.12.4 Site 4. Battery Shop Dry Well.

a. Collect water samples from the existing well, semiannually for one year (two sampling rounds). Analyze these samples for the chemical parameters listed in Table A-2.

b. Drill one (1) hollow-stem angled boring to a depth of 50 feet and collect split-spoon soil samples every 10 feet (10, 20, 30, 40, 50) and analyze these samples for the chemical parameters listed in Table A-3.

1.4.12.5 Site 5. SR-71 Shelter Drainage Area.

a. Collect grab samples of runoff from shelter area at two (2) locations, semiannually for one year (two sampling rounds). Analyze these samples for the chemical parameters listed in Table A-2.

b. Collect a maximum of five (5) surface soil samples by hand augering, one sample at each of the five (5) locations along the apron/drainage area boundary. One composite sample (0 to 1 foot) shall be retained from each sampling point and analyzed for the chemical parameters listed in Table A-3.

c. Drill a maximum of four (4) hollow-stem auger borings, three (3) in the drainage area west of SR-71 shelters and one (1) in the grass area northeast of shelter area for background. Collect split-spoon soil samples at 10-foot intervals (0, 10, 20, 30, 40, 50) to a depth of 50 feet and analyze the samples for the chemical parameters listed in Table A-3.

d. Install one (1) new monitoring well. Collect one (1) water sample from the new well and one (1) water sample from existing well, semiannually for one year (2 sampling rounds). Analyze the samples for the chemical parameters listed in Table A-2.

1.4.12.6 Site 7. Landfill No. 2

a. Install (1) monitoring well, upgradient of the landfill. Collect water samples from the new well and two existing wells, quarterly for one year (four sampling rounds). Analyze these samples for the chemical parameters listed in Table A-2.

b. Drill four (4) angled borings from each side of the landfill to a depth of 60 feet. Collect split-spoon soil samples at 10-foot intervals (10, 20, 30, 40, 50, 60) and analyze these samples for the chemical parameters listed in Table A-3.

c. Drill one (1) background soil boring to a depth of 50 feet in an undisturbed area near the landfill. Select three split-spoon soil samples corresponding to the landfill boring for analyses of the chemical parameters listed in Table A-3.

d. Collect one (1) surface water sample from Hutchinson Creek at the nearest downstream point to the landfill, quarterly for one year (four sampling rounds).

1.4.12.7 Site 9. Entomology Building 2560.

Drill one (1) hollow-stem auger boring next to the concrete pad area to a depth of 20 feet. Collect split-spoon soil samples at 5-foot intervals (0, 5, 10, 15, 20) and analyze these samples for the chemical parameters listed in Table A-3.

1.4.12.8 Site 11. Aircraft Ground Equipment Maintenance Area.

a. Drill a maximum of three (3) hollow-stem auger borings to a depth of 10 feet. Collect split-spoon soil samples at 0-, 5-, and 10-foot depths and analyze these samples for the chemical parameters listed in Table A-3.

b. Collect water samples from the existing well, semiannually for one year (two sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

1.4.12.9 Site 13. Landfill No. 1.

a. Install a maximum of (6) new monitoring wells. One of these six wells shall be drilled and screened into the deeper part of the aquifer (no deeper than 150 feet from land surface). Collect groundwater samples from the six new wells and two existing wells, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

b. Drill four (4) angled borings, one from each side of the landfill, to a depth of 60 feet. Drill one (1) vertical boring to a depth of 50 feet for background. Collect split-spoon soil samples at 10-foot intervals (10, 20, 30, 40, 50, 60) and analyze these samples for the chemical parameters listed in Table A-3.

c. Collect one (1) surface water sample from Hutchinson Creek at the nearest downstream point to the landfill, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

1.4.12.10 Site 15. Landfill No. 3.

a. Collect groundwater samples from four (4) existing wells, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

b. Drill four (4) angled borings from each side of the landfill to a depth of 60 feet and one vertical 50-foot boring nearby for background. Collect split-spoon soil samples at 10-foot intervals (10, 20, 30, 40, 50, 60) and analyze these samples for the chemical parameters listed in Table A-3.

c. Conduct an air emissions screening over the middle acre of the landfill. Using a portable FID calibrated with methane, determine a background level of volatile organics at the upwind side of the landfill, 10 feet above the surface. Walk the center acre of the landfill with the detector probe within 3 inches of landfill surface. Note any emissions above 50 ppm on topographic map of the site.

d. Install one soil vapor probe in center of landfill. Installation shall be accomplished by pushing the probe or by drilling a hole using hollow-stem auger and completing as a vapor well. Sample vapor probe (at least 24 hours after installation) by drawing a 10-liter Tedlar bag sample at a rate of 1 liter/minute. Analyze the collected air sample as specified by the method in Table A-3.

e. Conduct a 24-hour, downwind, ambient air test. One integrated 24-hour sample shall be collected using a sampling pump and a 30-liter Tedlar bag. Analyze the collected air sample as specified by the method in Table A-3.

1.4.12.11 Site 16. Explosive Ordnance Disposal Area.

a. Collect composite (0 to 1 foot) surface soil samples at three (3) locations in the bottom of the pit, using hand augering methods. Analyze these samples for the chemical parameters listed in Table A-3.

b. Drill two (2) angled soil borings to a depth of 50 feet. Locate these borings near each end of the pit. Drill one (1) vertical boring (50 feet depth) nearby for background. Collect split-spoon soil samples every 10-feet (10, 20, 30, 40, 50) and analyze these samples for the chemical parameters listed in Table A-3.

c. Install (1) monitoring well, west (downgradient) of the pit. Collect one groundwater sample from the well, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

d. Conduct one (1) day of magnetometer survey of area to determine if other disposal trenches exist.

1.4.12.12 Site 17. Best Slough.

Conduct one (1) day of magnetometer survey for drums.

1.4.12.13 Site 18. Bulk Fuel Storage Facility.

a. Collect composite (0 to 1 foot) surface soil samples at two (2) locations within each AVGAS tank berm area and analyze these samples (a total of 22 samples) for the chemical parameters listed in Table A-3.

b. Drill three (3) hollow-stem auger borings (8-inch diameter) to a depth of 10 feet, along railroad spur unloading area. Collect split-spoon soil samples at 0-, 5-, and 10-foot depth, and analyze these samples for the chemical parameters listed in Table A-3. Augered borings shall be filled with cement and recovered with gravel after sampling.

c. Collect composite (0 to 1 foot) ditch sediment samples at three (3) locations along AVGAS drainage ditch using hand augering method. Analyze these samples for the chemical parameters listed in Table A-3.

d. Collect one (1) composite (0 to 1 foot) soil sample from each of the three (3) MOGAS berm area using hand augering method. Analyze these samples for the chemical parameters listed in Table A-3.

e. Collect five (5) composite (0 to 1 foot) surface soil samples, using hand augering method, in the area where berm drainage is discharged to the east of the MOGAS tanks and in unused bermed area north of the tanks. Analyze these samples for the chemical parameters listed in Table A-3.

f. Collect three (3) composite (0 to 2 feet) surface soil samples, using hand augering method, in area east of MOGAS unloading station. Analyze these samples for the chemical parameters listed in Table A-3.

g. Install a maximum of two (2) new monitoring wells, one west of the AVGAS area and one west of the MOGAS area. Collect one (1) groundwater sample from each well, semiannually for one year (two sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

1.4.12.14 Site 19. Photowaste Emergency Holding Basin.

a. Collect two (2) composite (0 to 1 foot and 1 to 2 feet) soil samples at each of the three (3) locations using hand augering method. Analyze these samples for the chemical parameters listed in Table A-3.

b. Drill two (2) angled borings approximately 5 feet from the holding basin rim to a depth of 50 feet. Collect split-spoon soil samples at 10-foot intervals (10, 20, 30, 40, 50) and analyze these samples for the chemical parameters listed in Table A-3.

c. Drill one (1) boring to a depth of approximately 50 feet in an undisturbed location near the basin for background soil analyses and collect split-spoon soil samples, corresponding to the angled boring samples. Analyze these samples for the chemical parameters listed in Table A-3.

d. Collect one (1) surface water sample from Hutchinson Creek at the nearest downstream point to the basin, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

e. Install a maximum of three (3) monitoring wells, locating two (2) wells west (downgradient) of the basin and one (1) east (upgradient) of the basin. Collect one (1) groundwater sample from each of the wells, quarterly for one year (four sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

f. If pentachlorophenol (PCP) is found, select one (1) water sample and one (1) soil sample with the highest concentration of PCP and analyze these samples for PCDDs and PCDFs by the method listed in Table A-2 and A-3, respectively.

g. Install one (1) aquifer test well. Depth of well shall be determined by hydrogeologic conditions encountered, but no more than 150 feet deep from land surface.

h. Conduct an aquifer test by pumping the aquifer test well for a maximum of 72 hours and monitor drawdowns in the three monitoring wells. Use these test data to calculate groundwater flow velocity and direction.

1.4.12.15 Site 20. Grease Pit.

a. Collect one (1) composite (0 to 1 foot) pit bottom sample at three (3) locations in the existing grease pit with hand augers, and analyze these samples for the chemical parameters listed in Table A-3.

b. Drill one (1) angle boring under the grease pit to a depth of 50 feet. Collect split-spoon soil samples at 10-foot intervals (10, 20, 30, 40, 50) and analyze these samples for the chemical parameters listed in Table A-3.

c. Conduct one (1) day of magnetometer survey of area west of the existing grease pit to determine if other pits exists.

1.4.12.16 Site 21. JP-7 Aboveground Fuel Storage Area.

a. Collect one (1) composite (0 to 1 foot) soil sample from three (3) locations within the bermed tank area and two (2) locations along the drainage ditch, using hand augering method, and analyze these samples for the chemical parameters listed in Table A-3.

b. Drill one (1) monitoring well, downgradient of tank area. Collect one (1) groundwater sample, semiannually for one year (two sampling rounds), and analyze these samples for the chemical parameters listed in Table A-2.

1.4.12.17 Site 22. Abandoned Underground Storage Tanks.

a. Review all available drawings and aerial photographs (supplied by base POC) which show construction activities at Camp Beale/Beale Air Force Base to determine how structures have changed and whether additional tanks need to be deleted from, or added to, the UST base map.

b. Use a maximum of ten (10) days of magnetometer surveying to locate suspected tanks.

c. Prepare an overlay map showing current base structures. By overlaying the current map with the 1943 UST base map (supplied by base POC), determine how many tank locations are accessible.

1.4.12.18 Site 23. Ninth Transportation Refueling/Maintenance Shop.

Drill a maximum of four (4) borings to a depth of 20 feet. Collect split-spoon soil samples at 1-, 5-, 10-, 15-, and 20-feet. Analyze these samples for the chemical parameters listed in Table A-3.

Drill one monitoring well downgradient from transportation refueling/maintenance shop. Collect one (1) water sample and analyze it for parameters listed in Table A-2.

1.4.12.19 Site 24. Landfill No. 4. Perform records search by reviewing all base records supplied by the base POC.

1.4.12.20 Background Wells. Install two (2) monitoring wells on the east side of the base. Collect one (1) water sample from each well quarterly

for one (1) year (four sampling rounds) and analyze for the parameters listed in Table A-2.

1.5 Decision Documents.

1.5.1 Technical Document to Support No Further Action (TDSNFA). Based on comments to be provided by USAFOEHL, finalize draft TDSNFAs for sites 7, 12, and 17. Using the format provided in the Handbook, Section 11, prepare a decision document for each IRP site where the results of this investigation indicate that no significant threat to human health and welfare or the environment exists (Item VI, Sequence No. 4, paragraph 6.1).

1.5.2 Technical Document to Support a Remedial Action Alternative. For those IRP sites (a maximum of five (5) sites) where the available data indicates no feasibility study is necessary in order to take remedial action, prepare a decision document to support the selection process (Item VI, Sequence No. 4, paragraph 6.1). Use the format provided in the Handbook, Section 11.

1.6 Reports

1.6.1 Final Report. Prepare a report delineating all findings from this investigative stage of the remedial investigation. Review the Results, Conclusions and Recommendations concerning the sites listed in this task which were investigated during a previous IRP stage work effort. Use this information and data from previous efforts to establish trends and develop conclusions and recommendations. Integrate all investigative work done at each site to date so that the report reflects the total cumulative information for each site studied in this effort. Environmental sample results shall be analyzed with respect to QA/QC data unique to this project. Summary statistics shall be used and reported when justified by the amount and quality of data. Forward RI report to USAFOEHL/TS for Air Force and regulatory agency review (Item VI, Sequence No. 4, paragraph 6.1).

1.6.1.1 Draft Reports. Draft reports are considered "draft" only in the sense that they have not been reviewed and approved by the Air Force. In all other respects, "drafts" must be complete, in the proper format, and free of grammatical and typographical errors. All draft reports shall be thoroughly screened through in-house peer technical review before being released to USAFOEHL/TS.

1.6.1.2 Report Format. Strictly adhere to the USAFOEHL/TS Report Format (USAFOEHL/TS Handbook, Section 3) for tasks detailed. This format is an integral part of this Delivery Order.

1.6.1.3 Microfiche Copies of Final Report. Provide three (3) microfiche copies of the approved Final Report (Item VI, Sequence No. 17, paragraph 6.1).

1.6.2 Analytical Data. Upon completion of all analyses, tabulate and incorporate all analytical data into an Informal Technical Information Report and forward the report to USAFOEHL/TS no later than three (3) weeks after all analyses have been completed (Item VI, Sequence No. 3, paragraph 6.1). Use the format provided in the USAFOEHL/TS Handbook, Section 8.

1.6.3 Solid Waste Assessment Test (SWAT) Reports Provide SWAT reports following California Calderon legislation for sites 6, 13, and 15 as specified in Sections 6.3.4 and 6.3.5 of Beale Work Plan (Item VI, Sequence No. 4, paragraph 6.1). (Legislation and report format to be provided under separate cover.)

1.6.4 Toxic Pit Control Act (TPCA) Waste Characterization Report (WCR). Provide WCR following California Calderon legislation for sites 2, 3, and 20 as specified in Section 6.3.1 of Beale Work Plan (Item VI, Sequence No. 4, paragraph 6.1). (Legislation and report format to be provided under separate cover.)

1.6.5 Hydrogeological Assessment Report (HAR). Provide HAR following California Calderon Legislation for site 19 as specified in Sections 6.3.2 and 6.3.3 of the Beale Work Plan (Item VI, Sequence No.4, paragraph 6.1). (Legislation and report format to be provided under separate cover.)

1.7 Plans.

1.7.1 Plans for Current Effort.

1.7.1.1 Health and Safety Plan. Provide a written Health and Safety Plan within two (2) weeks after the Notice To Proceed (NTP) (Item VI, Sequence No. 3, paragraph 6.1). Comply with USAF, OSHA, EPA, State and local health and safety regulations regarding the upcoming work effort. Use EPA guidelines for designating the appropriate levels of protection needed at the study sites. Coordinate the Health and Safety Plan directly with applicable regulatory agencies prior to submittal to USAFOEHL/TS. Provide the USAFOEHL/TS TPM with evidence of Health and Safety Plan approval prior to the start of field work.

1.7.1.2 Work Plan. Modify Work Plan dated April 88 to reflect the Scope of the Site specific information delineated in I.1.4.12 of this Statement of Work and instructions obtained from the TPM (Item VI, Sequence No. 4, paragraph 6.1).

1.7.1.3 Quality Assurance Project Plan (QAPP). Modify QAPP dated Apr 88 to reflect the scope of this effort and the instructions of the TPM (Item VI, Sequence No. 4, paragraph 6.1).

1.8 Data Management. In addition to the hard copy of the field and laboratory test results submitted with the monthly R & D Status Report, data collected in this effort shall be archived with Air Force-compatible computer hardware and software and forwarded to USAFOEHL/TS per format and media instruction provided in the Handbook, Section 7. (Item VI, Atch 2, Sequence No. 1, paragraph 6.2). Additional detailed guidance is provided in the Installation Restoration Program Information Management System (IRPIMS) Data Loading Handbook (provided under separate cover).

1.9 Meetings. A maximum of three (3) contractor personnel shall attend four (4) meetings at Beale AFB CA. Each meeting shall be two 8-hour workdays in duration. All meetings shall be coordinated by USAFOEHL/TS.

1.10 Special Notifications. Immediately report to the USAFOEHL/TS TPM or his/her supervisor, via telephone, any data/results generated during this investigation which may indicate an imminent health risk. Follow the telephone notification with a written notice within three (3) days and attach a copy of the raw laboratory data (e.g., chromatograms, standards used for calibration,).

1.11 R & D Status Reports. Include all data as required by the USAFOEHL/TS Handbook, Section 6. Tabulated field and laboratory test results and QA/QC data shall be incorporated into the next monthly R & D Status Report as it becomes available and forwarded to the USAFOEHL/TS (Item VI, Sequence No. 1, paragraph 6.1).

1.12 The above technical efforts which include maximum requirements are estimates only. Should the contractor determine technical efforts, including field work, require variation from these estimates, the contractor shall obtain a written concurrence from the contracting officer's technical representative at USAFOEHL/TS. This concurrence is required prior to proceeding with the variation. Under such circumstances the ceiling price of this order shall remain unchanged. Should an increase in the ceiling be necessary, contracting officer authorization will be required prior to proceeding with the variation.

II. SITE LOCATION AND DATES:

Beale AFB, Marysville, CA
Date to be established

III. BASE SUPPORT

The Base will:

3.1 Locate underground utilities and issue digging or other appropriate permits to the IRP contractor prior to the commencement of digging or drilling operations.

3.2 Designate an accumulation point on the base for drill cuttings or well installation/development fluids from the required work that are hazardous waste (HW). The contractor shall be responsible for providing proper containment and analyses of the HW, and for transporting the HW to the accumulation point.

3.3 Make available any base engineering plans, drawings, diagrams, aerial photographs, to facilitate site evaluation.

3.4 Arrange for or have available prior to the start of field work the following services, materials, work space, and items of equipment to support the contractor during the investigation:

a. Base identification badges and vehicle passes.

b. An area (approximately 1000 square feet) for equipment and supplies storage.

c. Access to the base domestic water supply system for needed bore-hole flushing and equipment-cleaning water. This access will be through existing fire hydrants, hose bibs, on the base.

d. A hard-surfaced area or pad for equipment cleaning that has a potable water hose bib and an electrical outlet.

e. Temporary office space, not larger than 100 square feet, equipped with a telephone for local and long distance calling. The contractor shall pay for all phone costs other than two-party, local-area calls.

f. Access to existing monitoring wells.

g. Construction barriers, traffic cones, and security police surveillance in areas where site work may inhibit normal traffic flow.

IV. GOVERNMENT FURNISHED PROPERTY:

V. GOVERNMENT POINTS OF CONTACT:

5.1 USAFOEHL/TS
Technical Program Manager (TPM)
Carolyn K. Barley
USAFOEHL/TSS
Brooks AFB TX 78235-5501
(512) 536-9001 (X234)
AV 240-2158/2159 (X234)
1-800-821-4528 (X234)

5.2 Base Point of Contact (POC)
Kirk Schmalz
9 CSG/DEE
Beale AFB CA 95903-5000
(916) 634-4486
AV 268-4485

5.3 MAJCOM Point of Contact
HQ SAC/DEVC
Frank Uhlarik
Offutt AFB NE 68046
(402) 294-5854
AV 271-5854

VI. DELIVERABLES

6.1 Attachment 1 of the basic contract. In addition to Sequence Numbers 1 and 5 listed in Attachment 1 to the basic contract which apply to all orders, the Sequence Numbers and dates listed below are applicable to this order:

<u>Sequence No.</u>	<u>Para No.</u>	<u>Block 10</u>	<u>Block 11</u>	<u>Block 12</u>	<u>Block 13</u>	<u>Block 14</u>
3 (Health & Safety)	I.1.7.1.1	OTIME	88OCT10	88OCT11	-	10
3 (ITIR-Analytical Data)	I.1.6.2	OTIME	*	*	-	4
4 (Interim SWAT Tech Report)	I.1.6.3	ONE/R	89FEB15	89MAY17	89JUL19	****
4 (TPCA WCR)	I.1.6.4	ONE/R	89FEB15	89MAY17	89JUL19	*****
4 (HAR)	I.1.6.5	ONE/R	89FEB15	89MAY17	89JUL19	*****
4 (Work Plan)	I.1.7.1.2	OTIME	88OCT10	88OCT11	-	25
4 (QAPP)	I.1.7.	OTIME	88NOV10	88NOV11	-	25
4 (Decision Documents)	I.1.5	ONE/R	88DEC14	88DEC18	-	***
4 (Tech. Rpt)	I.1.6.1	ONE/R	89NOV15	90FEB14	90MAY16	**
4 (SWAT Tech Report)	I.1.6.3	ONE/R	89NOV15	90FEB14	90MAY16	****
4 (TPCA WCR)	I.1.6.4	ONE/R	89NOV15	90FEB14	90MAY16	*****
4 (HAR)	I.1.6.5	ONE/R	89NOV15	90FEB14	90MAY16	*****
17 (Microfiche)	I.1.6.1.3	OTIME	88OCT10	90MAY16	-	3

6.2 Attachment 2 of the basic contract.

<u>Sequence No.</u>	<u>Para No.</u>	<u>Block 10</u>	<u>Block 11</u>	<u>Block 12</u>	<u>Block 13</u>	<u>Block 14</u>
1 (Data Management)	I.1.8	OTIME	*	*	-	1

6.3 Notes:.

* For the analytical data, provide the ITIR upon completion of the total analytical effort and not later than three weeks after all analyses have been completed.

** One first draft report (15 copies), one second draft report (25 copies), and one Final Report (50 copies plus the original camera-ready copy) are required. Incorporate Air Force comments into the second draft and Final Reports as specified by USAFOEHL/TS. Supply USAFOEHL/TS with an advance copy of the first draft, second draft, and Final Reports for acceptance prior to distribution. Distribute the remaining 14 copies of the first draft report, 24 copies of the second draft report, and 49 copies of the Final Report as specified by USAFOEHL/TS.

*** One draft (15 copies) and one final (10 copies) of each decision document is required. Supply the USAFOEHL/TS with one advance copy of each draft and final decision document for acceptance prior to distribution. Incorporate Air Force comments into the final decision documents as specified by USAFOEHL/TS. Distribute the remaining 14 copies of the draft and 9 copies of the final decision documents as specified by USAFOEHL/TS.

**** Two reports required. One interim SWAT Report (10 copies) is required within three (3) months after completing the first round of sampling. One draft final SWAT Report (10 copies) shall be provided with the first draft of the final technical report. Incorporate Air Force comments into the final SWAT report (10 copies) and distribute the copies as specified by USAFOEHL/TS.

***** Two reports required. One interim WCR report (10 copies) is required one month after waste analysis completion. One final draft report (10 copies) is required three months after final quarterly sampling. Incorporate Air Force comments into the final WCR and distribute the copies as specified by USAFOEHL/TS.

***** Two reports required. One interim HAR Report (10 copies) is required within three (3) months after completing the first round of sampling. One draft final HAR report (10 copies) shall be provided with the first draft of the final technical report. Incorporate Air Force comments into the final HAR report (10 copies) and distribute the copies as specified by USAFOEHL/TS.

ANNEX A, Table A-1
Summary of Field Work by Site

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 9	Site 11	Site 12	
No. of Wells	5	1	1	0	1	1	0	0	0	0	
No. of Borings	0	7	10	1	4	5	0	1	3	0	
No. of Augerings	12	14	3	0	5	0	0	0	0	0	
Days of Magnetometer	0	0	0	0	0	0	0	0	0	0	

	Site 13	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20	Site 21	Site 22	Site 23	Back-ground	Total
No. of Wells	6	0	1	0	2	4	0	1	0	1	2	26
No. of Borings	5	5	3	0	3	3	1	0	0	4	0	55
No. of Augerings	0	0	3	0	36	3	3	5	0	0	0	84
Days of Magnetometer	0	0	1	1	0	0	1	0	10	0	0	13

ANNEX A, Table A-2
Maximum Number of Water Analyser, by Site

PARAMETER	ANALYTICAL METHOD	Site 1 GW/SW	Site 2 GW/SW	Site 3 GW/SW	Site 4 GW/SW	Site 5 GW/SW	Site 6 GW/SW	Site 7 GW/SW	Site 9 GW/SW	Site 11 GW/SW	Site 12 GW/SW	Site 13 GW/SW
Alkalinity - Carbonate, Bicarbonate, & Hydroxide (Field Test)	A403	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Specific Conductance (Field Test)	E120.1	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
pH (Field Test)	E150.1	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Total Dissolved Solids	E160.1	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Temperature (Field Test)	E170.1	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Common Anions (Chloride, Fluoride, Sulfate)	E325.3 E340.2 E375.2	24/20 24/20 24/20	24/0 24/0 24/0	12/0 12/0 12/0	2/0 2/0 2/0	4/4 4/4 4/4	12/4 12/4 12/4		2/0 2/0 2/0			12/4 12/4 12/4
Nitrogen, Nitrate-Nitrite	E353.2	24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Petroleum Hydrocarbons (Gasoline/Diesel)	CALI7	24/20		12/0	2/0	4/4	12/4		2/0			
ICP Screen (23 metals, exclude Boron and Silica)	SW3005/ SW6010											
Dissolved		24/20	24/0	12/0	2/0	4/4	12/4		2/0			12/4
Arsenic	SW7060											
Dissolved			24/0	12/0			12/4					12/4
Lead	SW3005/ SW7421											
Dissolved		24/20	24/0	12/0	2/0		12/4		2/0			12/4
Mercury	SW7470											
Dissolved			24/0	12/0			12/4					12/4

GW = GROUNDWATER
SW = SURFACE WATER

APPENDIX A, Table A-2 (Continued)
Maximum Number of Water Analyses by Site

PARAMETER	ANALYTICAL METHOD	Site 1 GW/SW	Site 2 GW/SW	Site 3 GW/SW	Site 4 GW/SW	Site 5 GW/SW	Site 6 GW/SW	Site 7 GW/SW	Site 9 GW/SW	Site 11 GW/SW	Site 12 GW/SW	Site 13 GW/SW
Seleni	SW7740		24/0	12/0		12/4					12/4	
Disolved												
Purgeable Halocarbons	SW5030/ SW8010	24/20	24/0	12/0	4/4	12/4			2/0		12/4	
Purgeable Aromatics	SW5030/ SW8020	24/20	24/0	12/0		12/4			2/0		12/4	
Semivolatile Organic Compounds	SW7510/ SW8270	24/20	24/0	12/0		12/4			2/0		12/4	
Chemical Oxygen Demand (COD)	A508A					12/4					12/4	
TNT, RDX, Picric Acid	see Atch 2											
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated Dibenzofurans (PCDFs)	SW8280											
Cyanide, Total	SW8010		24/0									

ANNEX A, Table A-2 (Continued)
Maximum Number of Water Analyses by Site

PARAMETER	ANALYTICAL METHOD	Site 15 GW/SW	Site 16 GW/SW	Site 17 GW/SW	Site 18 GW/SW	Site 19 GW/SW	Site 20 GW/SW	Site 21 GW/SW	Site 22	Site 23	Back- Ground Total
Alkalinity - Carbonate, Bicarbonate, & Hydroxide (Field Test)	A403	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Specific Conductance (Field Test)	E120.1	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
pH (Field Test)	E150.1	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Total Dissolved Solids	E160.1	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Temperature (Field Test)	E170.1	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Common Anions (Chloride, Fluoride, Sulfate)	E325.3 E340.2 E375.2	16/0 16/0 16/0	4/0 4/0 4/0		4/0 4/0 4/0	12/4 12/4 12/4		2/0 2/0 2/0	1/0 1/0 0	8/0 8/0 8/0	195 195 195
Nitrogen, Nitrate-Nitrite	E353.2	16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Petroleum Hydrocarbons (Gasoline/Diesel)	CALIF	16/0	4/0		4/0	12/4		2/0	1/0	8/0	135
ICP Screen (23 metals, exclude Boron and Silica)	SW3005/ SW6010										
Dissolved		16/0	4/0		4/0	12/4		2/0	1/0	8/0	195
Arsenic	SW7060										
Dissolved		16/0	4/0			12/4				8/0	132
Lead	SW3005/ SW7421										
Dissolved		16/0	4/0		4/0	12/4			1/0	8/0	185
Mercury	SW7470										
Dissolved		16/0	4/0			12/4				8/0	132

ANNEX A, Table A-2 (Continued)
Maximum Number of Water Analyses by Site

PARAMETER	ANALYTICAL METHOD	Stream										Back-Ground	Total
		Site 15 GW/SW	Site 16 GW/SW	Site 17 GW/SW	Site 18 GW/SW	Site 19 GW/SW	Site 20 GW/SW	Site 21 GW/SW	Site 22	Site 23			
Selenium	SW7740	16/0	4/0										
Dissolved													
Purgeable Halocarbons	SW5030/ SW8010	16/0	4/0	4/0	12/4							8/0	132
Purgeable Aromatics	SW5030/ SW8020	16/0	4/0	4/0	12/4	12/4		2/0				8/0	192
Semivolatile Organic Compounds	SW3510/ SW8270	16/0	4/0		12/4					1/0		8/0	183
Chemical Oxygen Demand (COD)	A508A	16/0			12/4							8/0	178
TNT, RDX, Picric Acid	see Atch 2		4/0		12/4							8/0	92
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated Dibenzofurans (PCDFs)	SW8280												4
Cyanide, Total	SW9010				1/0								1
													24

B
1
25

ANNEX A, Table A-3
Maximum Number of Soil Analyses by Site

PARAMETER	ANALYTICAL METHOD	Oil back-						
		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
Oil & Grease	SW9071							
Petroleum Hydrocarbons (Gasoline/Diesel)	CALIF	24	53	58	5	29	27	5
ICP Screen (23 metals, exclude Boron and Silica)	SW3050/ SW6010	24	53	58	5		27	5
Mercury	SW7471		53	58			27	5
Organochlorine Pesticides and PCBs	SW3550/ SW8080							5
Chlorinated Phenoxy Acid Herbicides	SW8150							5
Volatile Organic Compounds	SW8240	24	53	58			27	5
Semi-volatile Organic Compounds	SW3550/ SW8270	24	53	58			27	9
Soil Moisture Content	ASTM D2216	24	53	58	5	29	27	5
Soil pH	SW9045				5			
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs)	SW8280		1					
Explosives	USATAMA Method 4B see Atch 1							
Ignitability	SW7010			58				
Cyanide, Total	SW9010		53					
Air Samples Analyses	Calif Method ADOL002							
Extraction (STLC)	Calif Title 22							

B-1
N-2
O-3

ANNEX A, Table A-3
 Maximum Number of Soil Analyses by Site

PARAMETER	ANALYTICAL METHOD	Site 15	Site 16	Site 17	Site 18	Site 19	Site 20	Site 21	Site 22	Site 23	Cuttings	SNIC Total
Oil & Grease	SW9071					8						8
Petroleum Hydrocarbons (Gasoline/Diesel)	CALIF	29	18	45	21		5		20			377
ICP Screen (23 metals, exclude Boron and Silica)	SW3050/ SW6010	29	18	45	21	8			20	25		386
Mercury	SW7471	29	18		21	8				25		283
Organochlorine Pesticides and PCBs	SW3550/ SW8080									25		40
Chlorinated Phenoxy Acid Herbicides	SW8150											5
Volatile Organic Compounds	SW8240	29	18	45	21	8			20	25		381
Semi-volatile Organic Compounds	SW3550/ SW8270	29	18		21	8				25		311
Soil Moisture Content	ASTM D2216	29	18	45	21	8	5		20	25		420
Soil pH	SW9045											5
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated Dibenzofurans (PCDFs)	SW8280					1						2
Explosives	USATHAWA Method 4B see Atch 1		18									18
Ignitability	SW 1010					8						66
Cyanide, Total	SW9010											53
Air Samples Analyses	CALIF ADOL002											2
Extraction (STLC)	Calif Title 22											10

B-27

ANNEX A, Table A-4
 Analytical Methods and TOTAL Number of Water Analyses

PARAMETER	ANALYTICAL METHOD (a)	REPORTING UNITS	NUMBER OF ANALYSES	TRIP BLANKS	AMB COND BLANKS	EQUIP BLANKS	DUP/REP	SECOND COLUMN (c)	TOTAL ANALYSES
Alkalinity - Carbonate, Bicarbonate, & Hydroxide (Field Test)	A403	mg/L	195			20	20		235
Specific Conductance (Field Test)	E120.1	umhos/cm	195						195
pH (Field Test)	E150.1	pH Units	195						195
Total Dissolved Solids	E160.1	mg/L	195			20	20		235
Temperature (Field Test)	E170.1	deg C	195						195
Common Anions (Chloride, Fluoride, Sulfate)	E325.3 E340.2 E375.2	mg/L	195 195 195			20 20 20	20 20 20		235 235 235
Nitrogen, Nitrate-Nitrite	E353.2	mg/L	195			20	20		235
Petroleum Hydrocarbons (Gasoline/Diesel)	CALIF	mg/L	135			14	14		163
ICP Screen (23 Metals, exclude Boron and Silica)	SW3005/ SW6010	mg/L							
Dissolved (c)			195			20	20		235
Arsenic	SW7060	mg/L							
Dissolved (c)			132			14	14		160
Lead	SW3005/ SW7421	mg/L							
Dissolved (c)			185			19	19		223
Mercury	SW7470	mg/L							
Dissolved (c)			132			14	14		160

ANNEX A, 1 A-4 (Continued)
Analytical Methods and TOTAL Number of Water Analyses

PARAMETER	ANALYTICAL METHOD (a)	REPORTING UNITS	NUMBER OF ANALYSES	TRIP BLANKS	AMB COND BLANKS	EQUIP BLANKS	DUP/REP	SECOND COLUMN (c)	TOTAL ANALYSES
Selenium	SW7740	mg/L							
Dissolved (c)			132			14	14		160
Purgeable Halocarbons	SW5030/ SW8010	ug/L	192	20	20	20	20	136	408
Purgeable Aromatics	SW5030/ SW8020	ug/L	183	19	19	19	19	130	389
Semivolatiles Organic Compounds	SW2510/ SW8270	ug/L	178			18	18		214
Chemical Oxygen Demand (COD)	A508A	ug/L	92			10	10		112
TNT, RDX, Picric Acid	See Atch 2	ug/L	4			1	1		6
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated Dibenzofurans (PCDFs)	SW 8280	ug/L	1						1
Cyanide, Total	SW9010	mg/L	24			3	3		30

ANNEX A, Table A-5
 Analytical Methods and TOTAL Number of Soil Analyses (b)

PARAMETER	ANALYTICAL METHOD (a)	REPORTING UNITS	NUMBER OF ANALYSES	TRIP BLANKS	AHB COND BLANKS	EQUIP BLANKS	DUP/REP	SECOND COLUMN (c)	TOTAL ANALYSES
Oil & Grease	SW9071/	mg/kg	8				1		9
Petroleum Hydrocarbons (Gasoline/Diesel)	CALIF	mg/kg	377				38		115
ICP Screen (23 metals, exclude Boron and Silica)	SW3050/ SW6010	mg/kg	386				39		425
Mercury	SW7471	mg/kg	283				29		312
Organochlorine Pesticides and PCBs	SW3550/ SW8080	mg/kg	40				5	26	71
Chlorinated Phenoxy Acid Herbicides	SW8150	mg/kg	5				1	3	9
Volatile Organic Compounds	SW8240	mg/kg	381	39			39		459
Semivolatile Organic Compounds	SW3550/ SW8270	mg/kg	311				32		343
Soil Moisture Content (b)	ASTM D2216	per cent (%)	420				43		463
Soil pH	SW9045	pH unit	5				1		6
Polychlorinated Dibenzo-p-dioxins (PCDDs) and polychlorinated Dibenzofurans (PCDFs)	SW8280	mg/kg	2						2
Explosives	See Atch 1	mg/kg	18				2		20
Ignitability	SW1010	C	66				7		73
Cyanide, Total	SW9010 (d)	mg/kg	53				6		59
Air Samples Analyses	CALIF ADOL002	Ppm	2				0		2
Extraction (STLC)	Calif Title 22	mg/L	10				1		11

NOTES

- a Unless an abbreviated list of analytes is specified under "Parameter" above, the analytical protocol shall include all analytes listed in the referenced analytical method. The methods cited are from the following sources:

"A" Methods	Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985)
"E" Methods	Methods for Chemical Analysis of Water and Wastes, EPA Manual, 600/4-79-020 (USEPA, 1983 - with additions)
"SW" Methods	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition (USEPA, 1986)
"ASTM" Methods	American Society for Testing and Materials, 1919 Race Street, Philadelphia PA 19103
"CALIF" Method	Gasoline/Diesel Components - California Regional Water Quality Control Board, Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Tank Closure. December 1987.
	Air Samples - California Air Resource Board; Testing Guidelines for Active Solid Waste Disposal Sites, December 1986 (Method ADDL002, Attachment 2).
	STLC - California Administrative Code, Title 22, Division 4, Chapter 30, Article 11 Criteria for Identification of Hazardous and Extremely Hazardous Wastes.

- b For soil/sediment samples, report results as mg/kg of dry soil or sediment. Report moisture content for each sample. Contractor shall modify the equation for calculation of moisture content in ASTM D-2216 to read:

$$w = [(W1-W2)/(W1-WC)] \times 100$$

where w = moisture content, %

W1 = weight of container and moist soil, g

W2 = weight of container and oven-dried soil, g

WC = weight of container, g.

- c The sample shall be filtered in the field through a 0.5 um filter at the time of sample collection and before sample preservation.
- d Modified for soils. See Method A412, p. 329, Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985).
- e The maximum number of second-column confirmational analyses shall not exceed fifty percent (50%) of the actual number of field samples (to include duplicates, replicates, ambient condition blanks, trip blanks and equipment blanks). If the number of samples requiring second-column confirmation exceeds this allowance, contact the USAFOEHL/TS Technical Program Manager. The total number of samples listed in Tables A-4 and A-5 includes the allowance applicable to each GC method. If GC/MS, or a combination of second-column GC and GC/MS, is used, the total cost of all such analyses for a particular parameter shall not exceed the funding allowed for positive confirmation using only second-column GC.

REF 70H

70H

PART I SECTION F OF THE SCHEDULE SUPPLIES SCHEDULE DATA				1. PROC INSTRUMENT ID NO. (PIIN) F33615-85-D-4535	2. SPIIN D010	3. PAGE 36 OF 37
4. ITEM NO.	5. ACRN	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0001	AA					
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR	
A. 90DEC31	A.	A. 1	U	FY7624		
B.	B.	B.	D.	D.	D.	
C.	C.	C.	E.	E.	E.	
17. DESCRIPTIVE DATA						

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 89 NOV 15.

ALL DATA SHALL BE DELIVERED IAW ATTACHMENT #1 OF THE BASIC
CONTRACT AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION
NO LATER THAN 90 MAY 16.
THE DATA SHALL BE ACCEPTED BY THE GOVERNMENT NOT LATER THAN THE DATE
SHOWN IN BLOCK 11A.

4. ITEM NO.	5. ACRN	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0002	AA					
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR	
A. 90DEC31	A.	A. 1	U	FY7624		
B.	B.	B.	D.	D.	D.	
C.	C.	C.	E.	E.	E.	
17. DESCRIPTIVE DATA						

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 89 NOV 15.

4. ITEM NO.	5. ACRN	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. CON ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT
0003	AA					
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR	
A. 90DEC31	A.	A. 1	U	FY7624		
B.	B.	B.	D.	D.	D.	
C.	C.	C.	E.	E.	E.	
17. DESCRIPTIVE DATA						

SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 89 NOV 15.

ALL COMPUTER SOFTWARE/DATA SHALL BE DELIVERED IAW ATTACHMENT #2
AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION
NO LATER THAN 90 MAY 16.
THE DATA SHALL BE ACCEPTED BY THE GOVERNMENT NOT LATER THAN THE DATE
SHOWN IN BLOCK 11A.

*PRESENTS A NET INCREASE/DECREASE WHEN NO + OR - APPEARS AFTER THE ITEM NO.
E = ESTIMATED
- (IN QTY) = DECREASE
+ OR - (IN ITEM NO.) = ADDITION OR DELETION

REF 70H

70H

PART I SECTION F OF THE SCHEDULE.				PROC INSTRUMENT ID NO. (PIIN)		2. SPIIN		3.	
SUPPLIES SCHEDULE DATA				F33615-85-D-4535		0010		PAGE 37 OF 37	
4. ITEM NO.	5. ACRM	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. COM ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT			
0004	AA								
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR				
A. 90DEC31	A.	A. 1	U	FY7624					
B.	B.	B.	D.	D.	D.				
C.	C.	C.	E.	E.	E.				
17. DESCRIPTIVE DATA									
SEE SECTION H OF THE BASIC CONTRACT FOR FY7624 ADDRESS.									
TECHNICAL EFFORT SHALL BE COMPLETED NO LATER THAN 89 NOV 15.									
ALL CHEMICAL ANALYSIS DATA SHALL BE DELIVERED IAW ATTACHMENT #1									
AS IMPLEMENTED BY PARAGRAPH VI OF THE TASK DESCRIPTION.									
NO LATER THAN 90 MAY 16.									
THE DATA SHALL BE ACCEPTED BY THE GOVERNMENT NOT LATER THAN THE DATE									
SHOWN IN BLOCK 11A.									
4. ITEM NO.	5. ACRM	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. COM ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT			
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR				
A.	A.	A.							
B.	B.	B.	D.	D.	D.				
C.	C.	C.	E.	E.	E.				
17. DESCRIPTIVE DATA									
4. ITEM NO.	5. ACRM	6. TSP PRI	7. MILSTRIP DOC NO. AND SUFFIX	8. COM ITEM SERIAL NO.	9. ENDING SERIAL NO. (WHEN APPL)	10. CLIN IDENT EXHIBIT			
11. DEL SCHED DATE	12. ENDING DATE (WHEN APPL)	13. DEL SCHEDULE QTY*	14. SCTY CLAS	15. SHIP TO	16. MARK FOR				
A.	A.	A.							
B.	B.	B.	D.	D.	D.				
C.	C.	C.	E.	E.	E.				
17. DESCRIPTIVE DATA									

* REPRESENTS A NET INCREASE/DECREASE WHEN NO + OR - APPEARS AFTER THE ITEM NO.

E = ESTIMATED

- (IN QTY) = DECREASE

+ OR - (IN ITEM NO.) = ADDITION OR DELETION

APPENDIX C

REFERENCES

REFERENCES

AeroVironment, Inc., 1987. Installation Restoration Program, Phase II - Confirmation/Quantification - Stage 1, Beale Air Force Base, California. Prepared for Headquarters Strategic Air Command/Command Surgeon's Office. May 1987.

Air Force Engineering and Services Center (AFESC), 1981a. Analysis and Environmental Fate of Air Force Distillate and High Density Fuels. October 1981.

Air Force Engineering and Services Center (AFESC), 1981b. Hydrocarbon Fuel Chemistry: Sediment Water Interaction. November 1981.

Bateman, Paul, and Clyde Wahrhaftig, 1966. Geology of the Sierra Nevada. U.S. Geological Survey, Menlo Park, California; U.S.G.S. and University of California, Berkeley. California Division of Mines and Geology, Bulletin 190, Geology of Northern California. 1966.

Beale AFB, 1986. Natural Resources Conservation, Beale AFB, California, 1983 - 1985.

Black and Veatch, 1985. Underground Injection Control Permit Applications, Injection Wells 1, 2, 3, Photographic Wastewater Treatment and Disposal Facility. Department of the Air Force, Beale Air Force Base, California. Submitted to U.S. Environmental Protection Agency, Region IX. June 1985.

Bouwer, Herman, and R.C. Rice, 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells. Water Resources Research, Volume 12. June 1976.

Bouwer, Herman, 1989. The Bouwer and Rice Slug Test-- An Update. Ground Water, Volume 27. May - June 1989.

California Air Resources Board (CARB), 1987. Hazardous Waste Disposal Site Testing Guidelines. January 23, 1987.

California Department of Health Services (DHS), 1987a. Letter from David Wang, Senior Waste Management Engineer, Toxic Substances Control Division, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. February 3, 1987.

California Regional Water Quality Control Board, 1988.
Water Quality Goals, Hazardous Criteria, and Designated
Level Examples for Chemical Constituents. October 1988.

California Department of Water Resources (DWR), 1978.
Evaluation of Groundwater Resources: Sacramento Valley.
Prepared in Cooperation with the U.S. Geological Survey,
Bulletin 118-6. August 1978.

California Department of Water Resources, 1981. California
Rainfall Summary Monthly Total Precipitation 1949-1980.
July 1981.

California Department of Water Resources, 1986. Elevation
of Water in Wells, Spring 1986, Sacramento Valley and
Redding Basin. Map. 1986.

California State Water Resources Control Board, 1988.
Chlorinated Dibenzo-P-Dioxin and Debenzofuran Contamination
in California from Chlorophenol Wood Preservation Use.
March 1988.

California Regional Water Quality Control Board, Central
Valley Region, (RWQCB), 1987a. Letter from Karen A.
O'Haire, Chief, North Valley Regulatory Unit, to Capt.
Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force
Base. March 24, 1987.

California Regional Water Quality Control Board, Central
Valley Region, (RWQCB), 1987b. Letter from Greg K. Vaughn,
Senior Engineer, TPCA Unit, to Kirk Schmalz, Environmental
Coordinator, Beale Air Force Base. September 8, 1987.

CH2M HILL, 1988a. Installation Restoration Program,
Stage 2-1 Remedial Investigation, Workplan. Beale AFB,
California. October 1988.

CH2M HILL, 1988b. Installation Restoration Program,
Stage 2-1 Remedial Investigation, Quality Assurance Project
Plan (QAPP). Beale AFB, California. October 1988.

CH2M HILL, 1988c. Installation Restoration Program,
Stage 2-1 Remedial Investigation, Site Safety Plan.
Beale AFB, California. October 1988.

CH2M HILL, 1989a. Installation Restoration Program,
Stage 2-1 Remedial Investigation, Draft Solid Waste
Assessment Test (SWAT) Report for Base Landfills: Sites 6,
13, and 15. Beale AFB, California. June 1989.

CH2M HILL, 1989b. Installation Restoration Program, Stage 2-1 Remedial Investigation, Draft Hydrogeological Assessment Report (HAR) for Photowaste Emergency Holding Basin: Site 19. Beale AFB, California. July 1989.

Cooper, H.H., and C.E. Jacob, 1946. A Generalized Graphical Method for Evaluating Formation Constants and Summarizing Well Field History. Transactions of the American Geophysical Union, Volume 27. 1946.

Engineering Science, 1984. Installation Restoration Program, Phase I - Record Search, Beale Air Force Base, California. Prepared for the United States Air Force Strategic Air Command. April 1984.

Freeze, R. Allan and John A. Cherry. 1979. Groundwater. Prentice-Hall, Inc. 1979.

Harrill, J.R., 1970. Determining Transmissivity from Water Level Recovery of a Step-Drawdown Test, U.S. Geological Survey Professional Paper 700-C. 1970.

Herbert, F.W. and E.L. Bigg, 1969. Soils of the Yuba Area, California. University of California, Davis, Department of Soils and Plant Nutrition. 1969.

Olmsted, F.J. and Davis, G.H., 1961. Geologic Features and Groundwater Storage Capacity of the Sacramento Valley, Paper 1947. 1961.

Page, R.W., 1980. Groundwater Conditions at Beale Air Force Base and Vicinity, California. U.S. Geological Survey Open - File Report 80-204.

Poland, J.F., and R.E. Evenson, 1966. Hydrogeology and Land Subsidence, Great Central Valley, California. U.S. Geological Survey, Sacramento, California. California Division of Mines and Geology, Bulletin 190, Geology of Northern California. 1966.

Radian Corporation, 1985. Monitoring of Photo Waste Sludge Ponds, Beale Air Force Base, California. Prepared for the United States Air Force Office of Occupational and Environmental Health Laboratory, Brooks AFB, Texas. October 1985.

Rockwell, Gerald, 1978. Description of Wells at Beale Air Force Base and Vicinity, California. U.S. Geological Survey Open-File Report 78-10. January 1978.

Taylor, 1986. Memorandum Regarding Water Balance Calculations, Beale AFB, from Doug Taylor, AeroVironment Inc., to File-10416K. October 13, 1986.

U.S. Air Force Technical Applications Center, 1986. Air Weather Service (AWS) Climatic Brief. February 1986.

U.S. Environmental Protection Agency (EPA), 1987a. Data Quality Objectives for Remedial Response Activities. Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, Washington, D.C. EPA 540/G-87/003A. March 1987.

U.S. Environmental Protection Agency (EPA), 1986. Waste/Soil Treatability Studies for Four Complex Industrial Wastes: Methodology and Results, Volume 1. Office of Research and Development, Ada, Oklahoma. EPA/600/6-86/003a. October 1986.

U.S. Occupational and Environmental Health Laboratory, Technical Services Division (USAFOEHL/TS), 1988a. Handbook to Support the Installation Restoration Program (IRP) Statements of Work for Remedial Investigation/Feasibility Studies, Version 2. April 1988.

U.S. Occupational and Environmental Health Laboratory, Technical Services Division (USAFOEHL/TS), 1988b. IRP Analytical Protocols. March 1988.

U.S. Department of Agriculture, Soil Conservation Service, 1985a. Soil Survey of Beale Air Force Base. January 1985.

U.S. Department of Agriculture, Soil Conservation Service, 1985b. Botanical Analysis of the Vernal Pool Plant Community and Associated Plant Species and A Wetland Plant Community Survey of Beale AFB. September 24, 1985.

Wirth Environmental Services, 1987. A Cultural Resource Overview of Beale AFB, California. June 1987.

Yuba County Planning Dept., 1986. Land Use Element - Yuba County General Plan. December 1986.

PERSONAL COMMUNICATIONS

Armstrong, James. Superintendent of Horizontal Construction, 9th Civil Engineering Squadron, USAF. December 7, 1989.

Dauterive, Russell. Fire Chief, Beale AFB. August 15, 1989.

Guerro, Tony. Wastewater Treatment Plant Operator, Beale AFB. March 8, 1989.

McBride, David. Air Quality and Standards Specialist III, Yuba County Air Pollution Control District. December 17, 1987.

Kohl, Peggy. U.S. Fish and Wildlife Services. August 3, 1989.

REFERENCES FOR APPLICABLE OR RELEVANT AND APPROPRIATE
REQUIREMENTS (ARARS)

Federal

Resource Conservation and Recovery Act as amended by The
Hazardous and Solid Waste Amendments of 1984, 42 United
States Code (USC) 6901, 40 Code of Federal Regulations (CFR)
264.94, 264.18(a), 264.18(b), 264.18(c).

Superfund Amendments and Reauthorization Act of 1986, Report
99-962 to accompany H.R. 2005, Title II of the Social
Security Act.

Safe Drinking Water Act, 42 USC 300 and 300n, 40 CFR 141,
142, 143, 146.4, 149.3.

National Primary and Secondary Drinking Water Regulations;
Proposed Rule, U.S. EPA, 40 CFR 141, 142, 143, Federal
Register, Monday, May 22, 1989.

Public Law No. 99-339, 100 Statute 642.

Clean Water Act, 33 USC 1251-1376, 40 CFR 125, 131, 141.

Clean Air Act, 42 USC 7401-7642, 40 CFR 50.

Toxic Substances Control Act, 15 USC 2601 et. seq., 40 CFR
761.

Marine Protection, Research, and Sanctuaries Act, Section
103, 33 USC 1252-1376, 40 CFR 230, 231.

Executive Order On Flood Plains, Executive Order 11988, 40
CFR 6, Appendix A.

National Archaeological and Historical Preservation Act, 16
USC Section 469, 36 CFR 65.

Fish and Wildlife Coordination Act, 16 USC 661 et. seq., 40
CFR 6.302.

Scenic Rivers Act, 16 USC 1271 et. seq., Section 7(a).

Coastal Zone Management Act, 16 USC 1461 et. seq.

Historic Sites, Buildings, and Antiquities Act, 16 USC
461467.

Rivers and Harbors Act, 33 USC 403, 33 CFR 320-330.

National Historic Preservation Act, Section 106, 16 USC 470 et. seq., 36 CFR 800.

Endangered Species Act of 1973, 16 USC 1531, et. seq., 50 CFR 200, 50 CFR 402.

Executive Order on Protection of Wetlands, Executive Order 11990, 40 CFR 6, Appendix A.

Wilderness Act, 16 USC 1131 et. seq., 50 CFR 35.1 et. seq.

National Wildlife Refuge System, 16 USC 668 d.d. et seq., 50 CFR Part 27.

Quality Criteria for Water, U.S. EPA, Office of Water Regulations and Standards, May 1, 1986, EPA 440/5-86-001.

CERCLA Compliance with Other Laws Manual, OSWER Directive 9234.1-01, Interim Final.

State

Mulford-Carrell Air Resources Act, California Health and Safety Code, Division 26, Section 39000 et. seq., California Administrative Code (CAC), Title 17, Part III, Chapter 1, Section 6000 et. seq.

California Safe Drinking Water Act, California Health and Safety Code, Division 7, Part 1, Chapter 7, Section 4010 et. seq. CAC Title 22, Division 4, Chapter 15.

Porter Cologne Water Quality Act, California Water Code, Division 7, CAC Title 23, Division 7, Chapter 3, Sections 2050-2836.

California Endangered Species Act, CAC Title 14, Division 670.5, Chapter 1.5.

California Wilderness Act, CAC Title 3, Division 5, Chapter 1.3.

California Fish and Game Act, Fish and Game Code, Division 6, Part 1, Chapter 2, Sections 5650 and 5651.

California Wild and Scenic Rivers Act, CAC Division 5, Chapter 1.4.

California Coastal Act of 1976, Public Resources Code,
Division 13, Section 21000 et. seq.

California Hazardous Waste Management Regulations, CAC Title
22, Division 4, Chapter 4, Article 9.

California Department of Health Services Site Mitigation
Decision Tree, California Department of Health Services
(DHS), Toxic Substances Control Division, Technical Services
Unit, May 1986.

California Department of Health Services Applied Action
Levels,
California Department of Health Services, Toxic Substances
Control Division, Technical Services Unit, June 30, 1989.

California Department of Health Services Action Levels for
Public Water Supplies, California Department of Health Ser-
vices, Public Water Supply Branch, DHS Action Levels for
Public Water Supplies, July 1989.

Leaking Underground Fuel Tank (LUFT) Field Manual: Guide-
lines for Site Assessment, Cleanup, and Underground Storage
Tank Closure, State of California Leaking Underground Fuel
Tank Task Force, May 1988.

Other













Water Quality for Agriculture, Food and Agriculture
Organization of the United States Irrigation and Drainage
Paper, Volume 29, Revision 1, R.S. Ayers, Soil and Water
Specialist (Emeritus) University of California, Davis,
California, and D.W. Westcot, Senior Land and Water
Resources Specialist, California Regional Water Quality
Control Board, Sacramento, California.

APPENDIX D

APPENDIX D presents borings logs and well completion details for soil borings and monitoring wells.

SOIL BORING AND MONITORING WELL SYMBOLIC LOG:

SOIL TYPE:

	LEAN CLAY	(CL)
	SILT	(ML)
	SILTY CLAY	(CL/ML)
	POORLY GRADED SAND	(SP)
	WELL GRADED SAND	(SW)
	CLAYEY SAND	(SC)
	SILTY SAND	(SM)
	POORLY GRADED GRAVEL	(GW)
	WELL GRADED GRAVEL	(GP)
	SILTY GRAVEL	(GM)
	CLAYEY GRAVEL	(GC)
	FAT CLAY	(CH)

SOIL BORING AND MONITORING WELL LEGEND:

SAMPLE TYPE:



1.4-INCH INSIDE DIAMETER SPLIT BARREL
SAMPLE COLLECTED FOR VISUAL
CLASSIFICATION AND LOGGING



2.5-INCH INSIDE DIAMETER SPLIT BARREL
SAMPLE RETAINED FOR CHEMICAL ANALYSIS



2.5-INCH INSIDE DIAMETER SPLIT BARREL
SAMPLE COLLECTED FOR VISUAL
CLASSIFICATION AND LOGGING

SYMBOLIC LOG:

SEE SYMBOLIC LOG LEGEND FOR KEY TO GRAPHIC PATTERN

NOTES:

1. THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURRING AT THESE BORING LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE LOCATIONS.

2. BORINGS WERE LOGGED IN THE FIELD BY CH2M HILL PERSONNEL. SAMPLES WERE EXAMINED AND VISUALLY CLASSIFIED IN APPROXIMATE ACCORDANCE WITH ASTM D 2488.

SITE 1

WEST DRAINAGE DITCH

Soil Boring and Well Logs

PROJECT NUMBER S-CF-359.R1.04	BORING NUMBER 1-C-16W	SHEET : OF :
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT <u>SEALE AFB</u>	LOCATION <u>NE OF HEADWALL</u>
ELEVATION <u>93.13 FT NGVD</u>	DRILLING CONTRACTOR <u>LAYNE ENVIRONMENTAL-STEVE JOHNSON</u>
DRILLING METHOD AND EQUIPMENT <u>DUAL TUBE PERCUSSION AP1000</u>	
WATER LEVEL AND DATE <u>0.65 FT NGVD</u>	START <u>12/1/88</u> FINISH <u>12/2/88</u> LOGGER <u>R. PEXTON</u>

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		SANDY LEAN CLAY light brown dry loose sandy clay (CL)	CL	12/1/88 12:00 start H-Nu=1.2 ppm =background difficult site access-built support pad for drill rig with railroad ties time lost pulling rigs out of mud
5				
10		SILT WITH SAND light brown dry loose (ML)	ML	
15		LEAN CLAY moderate brown dry blocky rootmarked clay (CL)	CL	
20		SILTY SAND moderate brown dry silty fine sand (SM)	SM	
25				
30		WELL GRADED SAND WITH GRAVEL yellow-brown fine to coarse with some cobbles of basalt,	SW	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-16W	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT SEALE AFB LOCATION NE OF HEADWALL
 ELEVATION 93.13 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.65 FT NGVD START 12/1/88 FINISH 12/2/88 LOGGER B. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	claystone and coarse sandstone (SW)	SW	H-Nu=background at cuttings
35				
40		POORLY GRADED SAND brown dry fine to medium sand (SP)	SP	
45				
50		WELL GRADED SAND brown dry fine to coarse arkosic sand (SW)	SW	
55				
60		POORLY GRADED SAND greenish gray silty fine sand strongly cemented (SP)	SP	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-16W	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NE OF HEADWALL
 ELEVATION 93.13 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.65 FT NGVD START 12/1/88 FINISH 12/2/88 LOGGER B. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
60	<p>4 inch dia schedule 40 PVC</p> <p>#30 Silica Sand</p> <p>bentonite</p> <p>#3 Monterey Sand</p>	POORLY GRADED SAND as above	SP	H-Nu=background
65		CLAYEY SAND reddish brown dry clayey weathered sand (SC)	SC	
70		WELL GRADED SAND green-brown dry fine to coarse sand (SW)	SW	
75				
80		SANDY LEAN CLAY reddish brown dry clay with medium sand (CL)	CL	
85		WELL GRADED SAND WITH GRAVEL moist fine to coarse well cemented sand with cobbles of weathered granodiorite (feldspars weathering to clays) (SW)	SW	H-Nu=background
90				

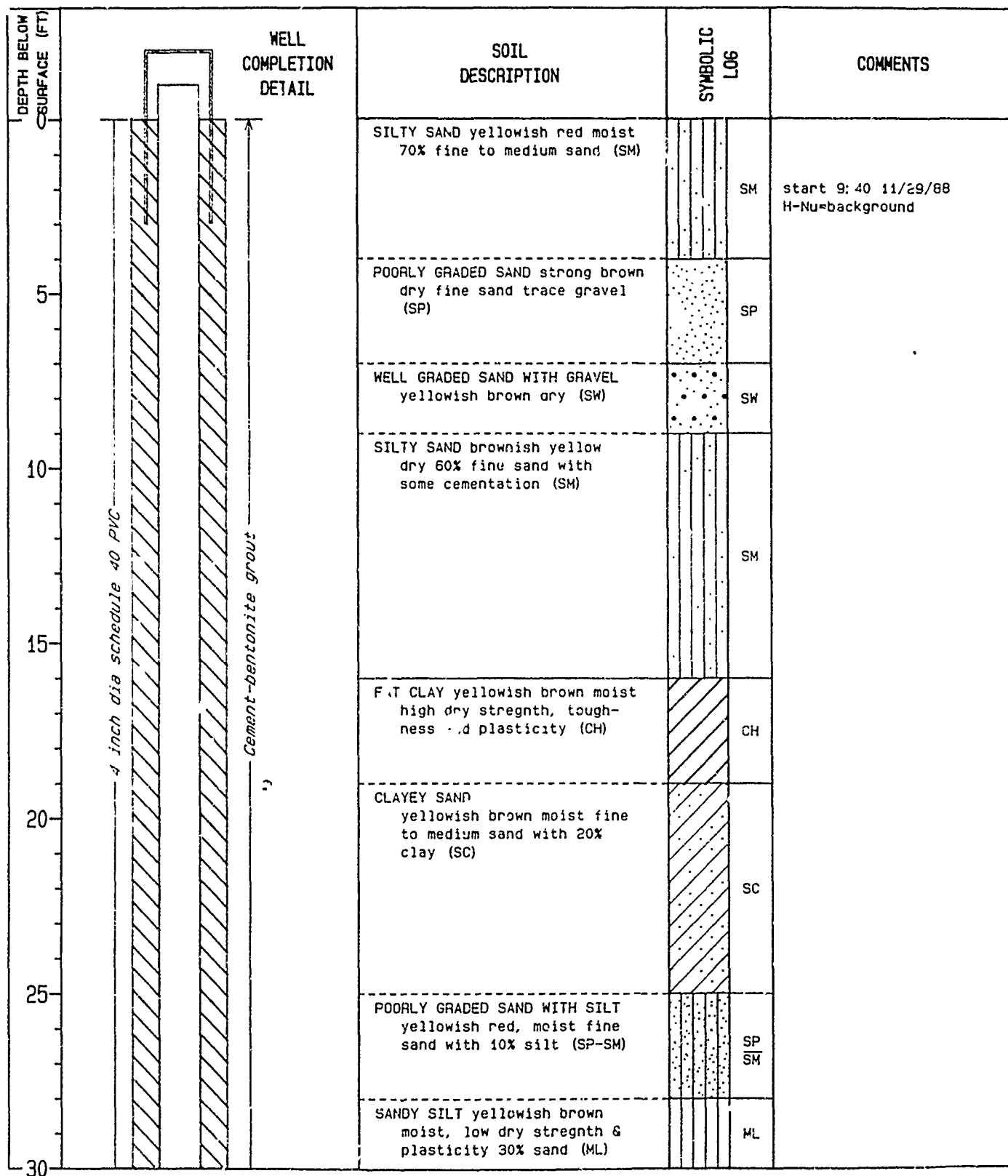
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-1GW	SHEET 4 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NE OF HEADWALL
 ELEVATION 93.13 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.65 FT NGVD START 12/1/88 FINISH 12/2/88 LOGGER R. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95			SW	moist samples at 94 first water 94-95 ft
100		WELL GRADED GRAVEL WITH SAND wet medium to very coarse sand with gravel and cobbles of granodiorite to 6 inch diameter (GW)		little water produced
105			GW	
110		BOTTOM OF BOREHOLE AT 112 FEET		16:00 H-Nu=background note: difficulty completing well, casing came up when drive casing was raised. Casing removed borehole cleaned out and new casing installed.
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-2GW	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION S OF WEST DRAINAGE DITCH
 ELEVATION 89.89 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL USE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.21 FT NGVD 3/27/89 START 11/29/88 FINISH 11/29/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-2GW	SHEET 2 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH
 ELEVATION 89.89 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 2.21 FT NGVD 3/27/89 START 11/29/88 FINISH 11/29/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30		SANDY SILT (ML)	ML	
		FAT CLAY brownish yellow moist high plasticity medium dry strength & toughness (CH)	CH	
35		LEAN CLAY yellowish brown moist medium toughness & dry strength (CL)	CL	
40		SILTY SAND brown dry fine to medium sand with 30% silt (SM)	SM	
	4 inch dia schedule 40 PVC	WELL GRADED SAND dark brown moist subrounded (SW)	SW	
45	Cement-bentonite grout	POORLY GRADED SAND dark grayish brown moist coarse to medium sand (SP)	SP	
50		SANDY FAT CLAY very dark gray high plasticity clay with 40% fine sand (CH)	CH	
55		CLAYEY SAND brown dry fine sand with lean clay (SC)	SC	
60				

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
1-C-26W

SHEET 3 OF 5

SOIL BORING LOG

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH

ELEVATION 89.89 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 0.2 FT NGVD 3/27/89 START 11/29/88 FINISH 11/29/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
00			SC	
		SILTY SAND reddish brown moist fine sand with 40% silt (SM)	SM	
65		POORLY GRADED SAND WITH SILT reddish brown dry fine sand with 10% silt	SP SM	
70		SILTY SAND dark brown moist fine to medium sand with silt (SM)	SM	
75		POORLY GRADED SAND brown moist fine sand with variable amounts of medium sand and silt up to 20% (SP)		
80		as above becoming grayish brown	SP	
85		trace subrounded flat and elongated river cobbles to 4 inches		
90		WELL GRADED SAND dark grayish brown moist fine to coarse subangular sand (SW)	SW	

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
1-C-26W

SHEET 4 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

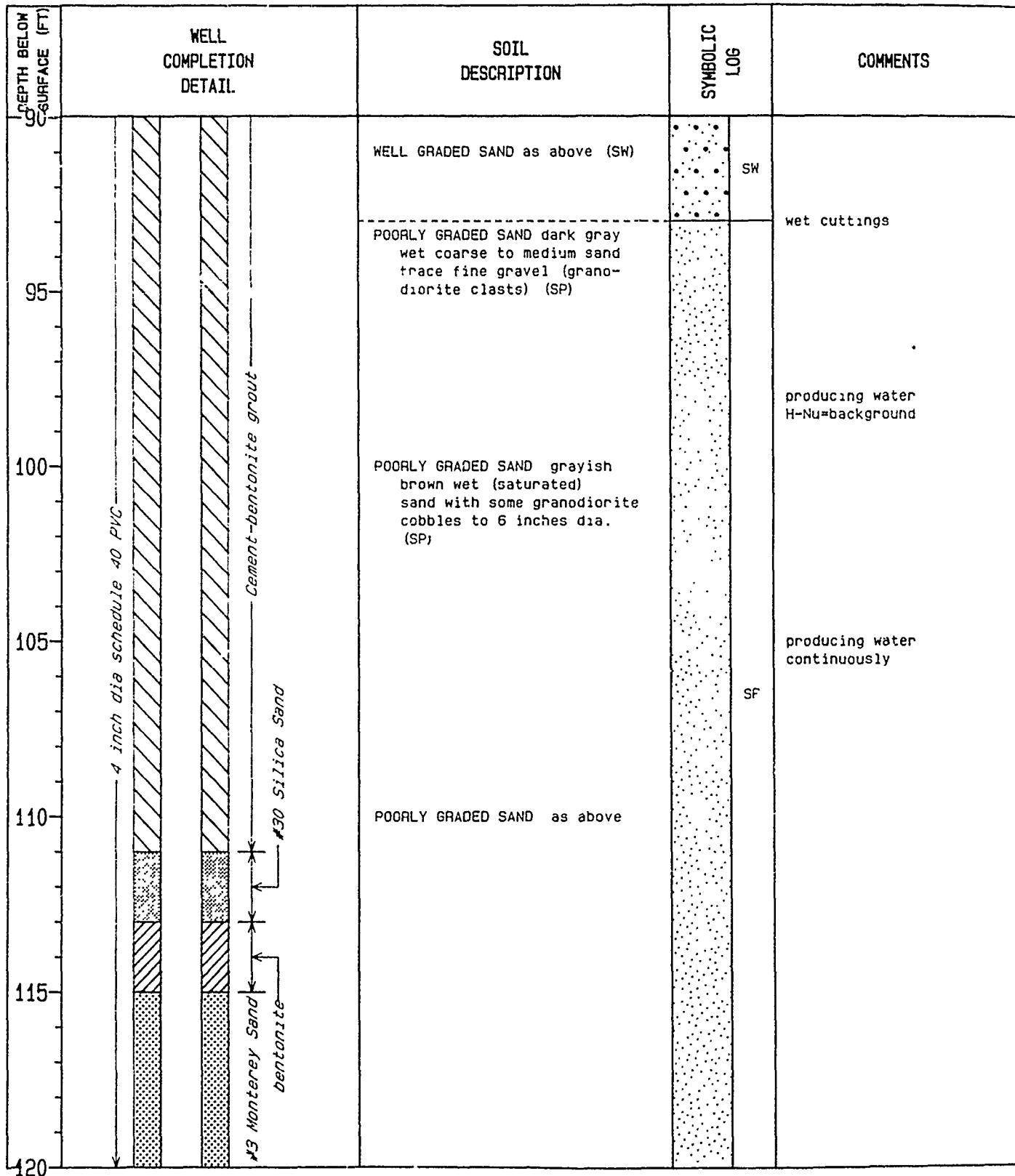
LOCATION S. OF WEST DRAINAGE DITCH

ELEVATION 69.89 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 0.21 FT NGVD 3/27/89 START 11/29/88 FINISH 11/29/88 LOGGER C. ELLIOTT



PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
1-C-2GW

SHEET 5 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

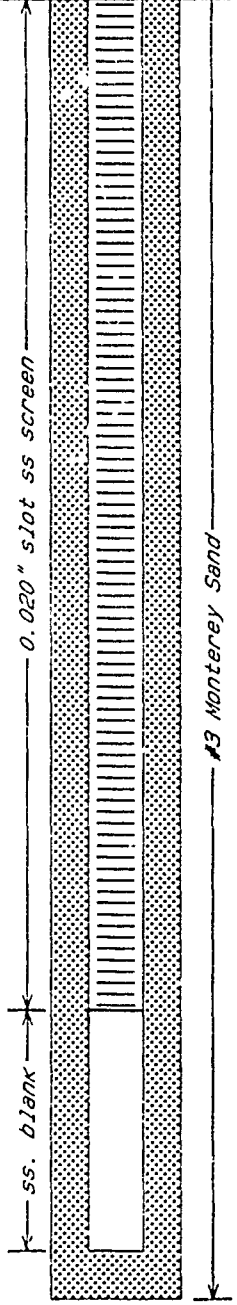
LOCATION S. OF WEST DRAINAGE DITCH

ELEVATION 89.89 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

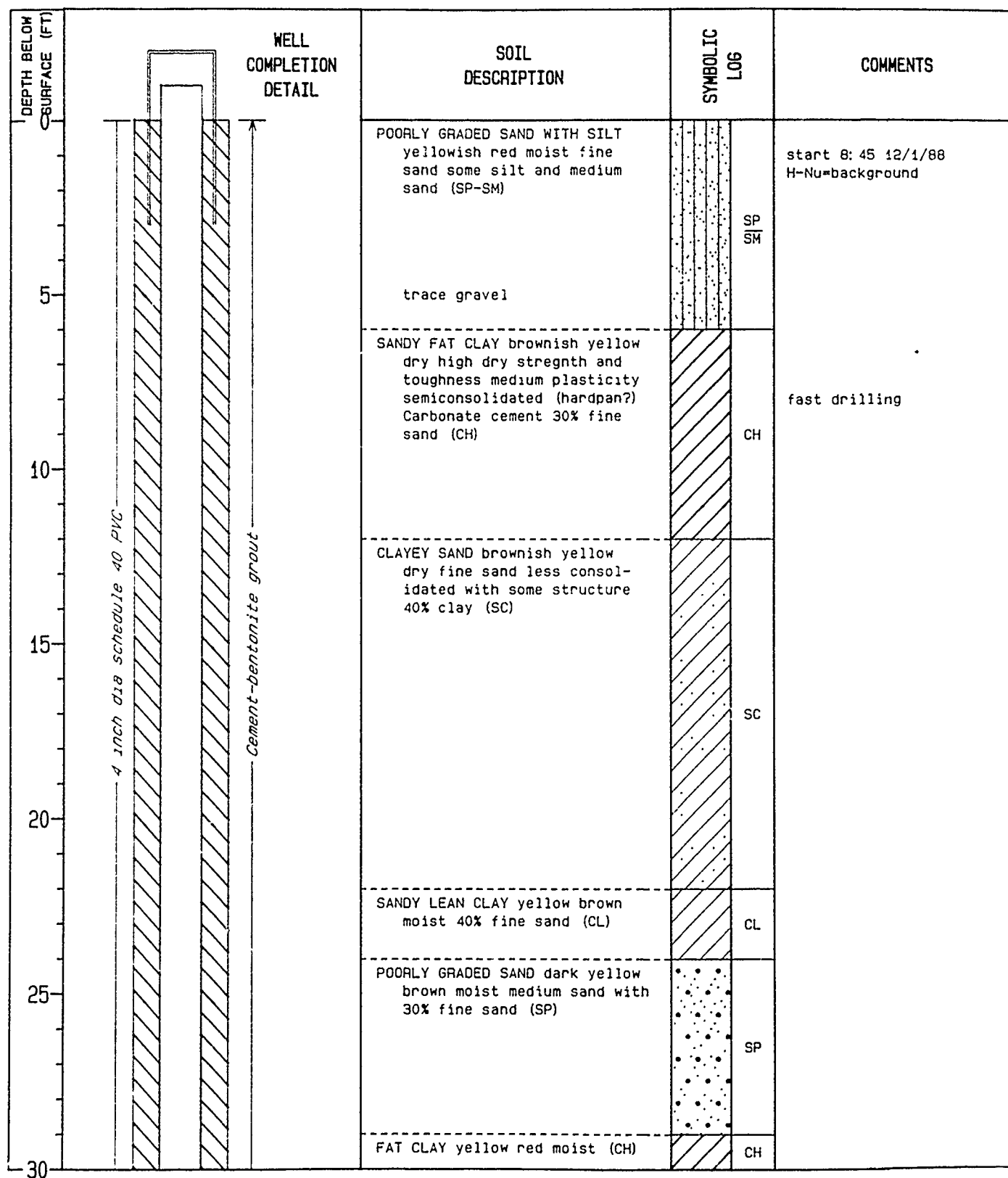
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 0.21 FT NGVD 3/27/89 START 11/29/88 FINISH 11/29/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		POORLY GRADED SAND grayish brown saturated medium sand as above (SP)	SP	producing water
125				
130				
135		SILTY SAND yellowish brown saturated well graded fine to coarse sand trace gravel 30% silt (SM)	SM	
140		FAT CLAY pale brown moist high dry strength plasticity and toughness some semi-consolidated (claystone) (CH)	CH	stop producing water
145				H-Nu=background
150		BOTTOM OF BORING AT 147 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-36W	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH
 ELEVATION 90.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/1/88 FINISH 12/1/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-3GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH
 ELEVATION 90.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/1/88 FINISH 12/1/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4 inch dia schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	FAT CLAY yellow red moist high dry strength & toughness medium plasticity & cement 10% fine sand (CH)		
35		FAT CLAY strong brown moist high plasticity medium toughness (CH)		
40		LEAN CLAY strong brown moist (CL)		
45		WELL GRADED SAND dark brown moist fine to coarse sand trace fine gravel (SW)		
50		POORLY GRADED SAND dark grey brown moist medium sand		
55		POORLY GRADED SAND WITH SILT dark grayish brown moist some laminated cemented layers 58-63 feet (SP-SM)		
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-3GW	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH
 ELEVATION 90.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/1/88 FINISH 12/1/88 LOGGER C. ELLIOTT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
60		POORLY GRADED SAND WITH SILT as above (SP-SM)	SP SM	
65		SILTY SAND dark yellowish brown moist medium to fine sand with 20% silt (SM)	SM	
70		CLAYEY SAND light yellowish brown fine sand 20% clay cemented (SC)	SC	
75		SILTY SAND yellowish brown moist poorly graded fine sand with 20% silt (SM)	SM	
80		WELL GRADED SAND gray brown moist fine to coarse sand trace silt and gravel (SW)	SW	
85		CLAYEY SAND dark brown moist fine to medium sand with 40% fat clay (SC)	SC	
90		WELL GRADED SAND dark grayish brown moist fine to coarse subrounded sand (SW)	SW	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-3GW	SHEET 4 OF 4
----------------------------------	--------------------------	--------------

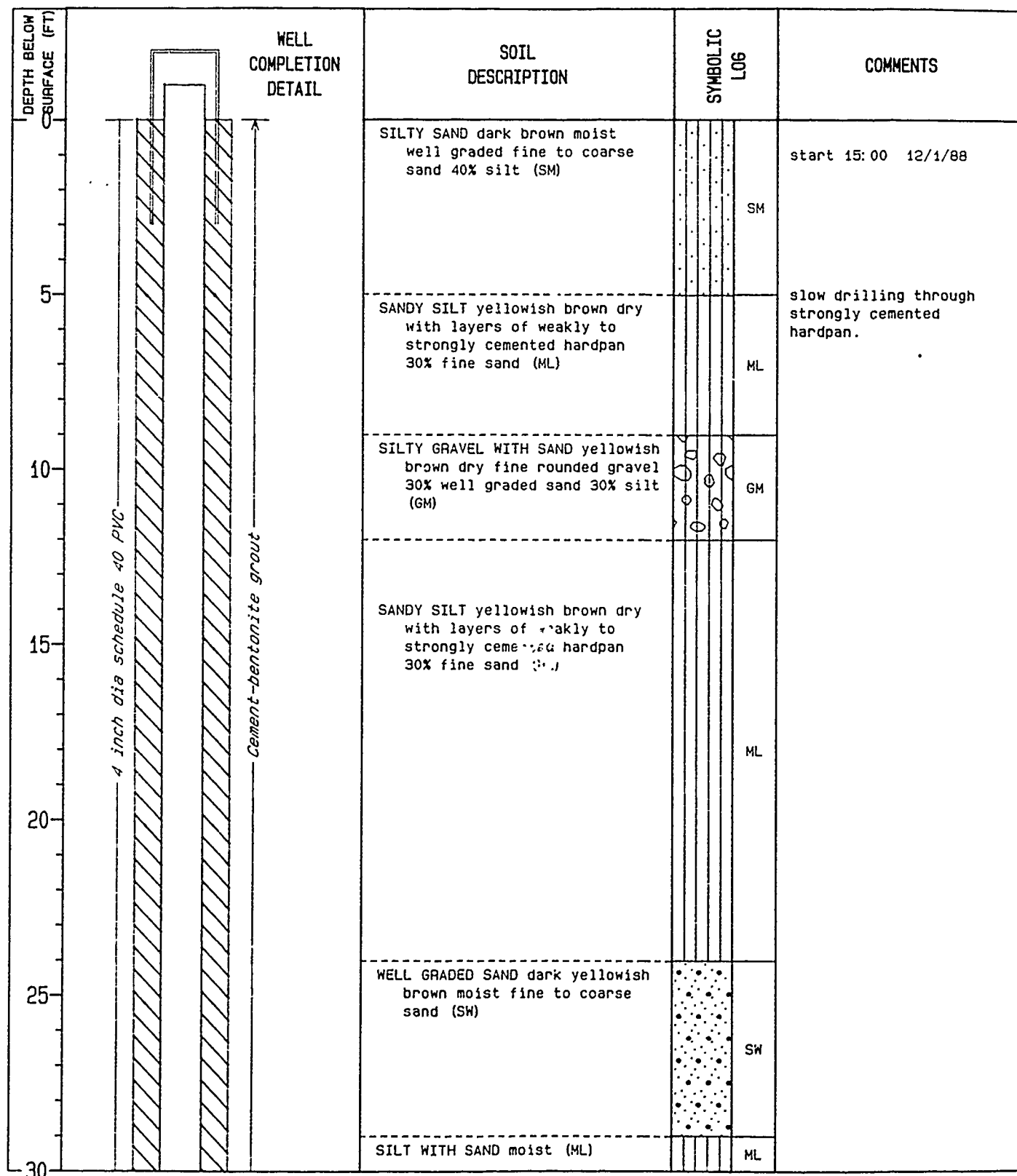
SOIL BORING LOG

PROJECT BEALE AFB LOCATION S. OF WEST DRAINAGE DITCH
 ELEVATION 90.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/1/88 FINISH 12/1/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90		WELL GRADED SAND dark grayish brown wet fine to coarse subrounded sand derived from granodiorite	SW	wet cuttings first water H-Nu=1.0 ppm on wet cuttings
95		WELL GRADED SAND WITH SILT dark gray brown wet (SW-SM)	SW SM	producing water H-Nu=1.6 ppm downhole 1.0 ppm on wet cuttings
100		POORLY GRADED SAND WITH GRAVEL wet coarse sand with 20% gravel and 10% granodiorite cobbles to 4 inches (SP-GP)	SP GP	producing much water
105		SILTY SAND grayish brown saturated w/ graded sand with 40% silt trace gravel (SM)	SM	
110		BOTTOM OF BORING AT 111 FEET		
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-4GW	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.78 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.23 FT NGVD 3/27/89 START 12/1/88 FINISH 12/2/88 LOGGER C. ELLIOTT





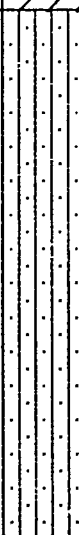


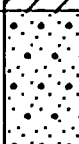

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-46W	SHEET 2 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.78 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.23 FT NGVD 3/27/89 START 12/1/88 FINISH 12/2/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	SILT WITH SAND reddish brown moist layers of moderate to strong cementation 20% fine sand ((ML)	ML	fast drilling
35		FAT CLAY brownish yellow moist high toughness plasticity and dry strength (CH)	CH	
40				
45		SILTY SAND dark grayish brown moist well graded coarse to fine rounded to subrounded sand laminated some moderately cemented layers (SM)	SM	
50				
55		well consolidated 57-59 ft		
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-46W	SHEET 3 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.78 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.23 FT NGVD 3/27/89 START 12/1/88 FINISH 12/2/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN CLAY WITH SAND dark gray moist medium toughness and plasticity 20% fine sand (CL)	 CL	
65		FAT CLAY WITH SAND reddish brown moist high plasticity and dry strength medium toughness 20% fine sand (CH)	 CH	
70		SILTY SAND strong brown moist fine sand 20% silt (SM)	 SM	
75		moderately to strongly cemented 73-75 ft		
80		SILTY SAND dark grayish brown moist well graded coarse to fine sand 30% silt (SM)	 SM	
		POORLY GRADED SAND WITH SILT grayish brown moist fine sand 10% silt (SP-SM)	 SP-SM	
85		FAT CLAY brown moist high dry strength toughness and plasticity slightly consolidated (CH)	 CH	
		WELL GRADED SAND dark grayish brown moist medium to fine sand 20% coarse sand trace fine gravel (SW)	 SW	
90				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-4GW	SHEET 4 OF 5
SOIL BORING LOG		

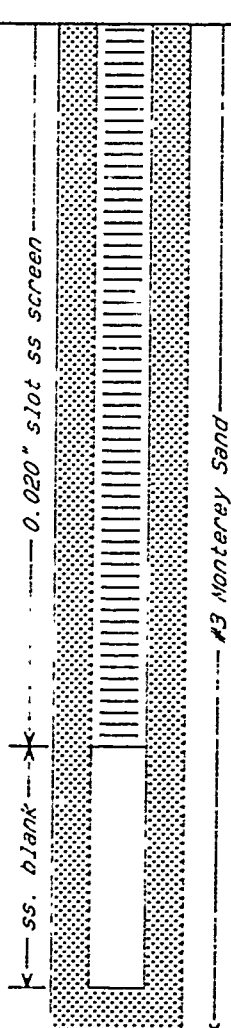
PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.78 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.23 FT NGVD 3/27/89 START 12/1/88 FINISH 12/2/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95	<p>4 inch dia schedule 40 PVC</p> <p>Cement-bentonite grout</p> <p>#30 Silica Sand</p> <p>bentonite</p> <p>#3 Monterey Sand</p>	WELL GRADED SAND grayish brown wet well graded coarse to medium sand 20% fine sand as above (SW)	SW	first water wet cuttings H-Nu=2 ppm
100		POORLY GRADED GRAVEL WITH SAND dark gray wet fine rounded to subrounded gravel trace cobbles to 3 inches 40% coarse sand (GP)	GP	producing water H-Nu=2.4 ppm on water 2.8 ppm downhole
105		WELL GRADED SAND dark grayish brown wet fine to coarse sand with some 1 to 6 inch layers of fine sand (SW)	SW	producing water
110				
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-4GW	SHEET 5 OF 5
----------------------------------	--------------------------	--------------

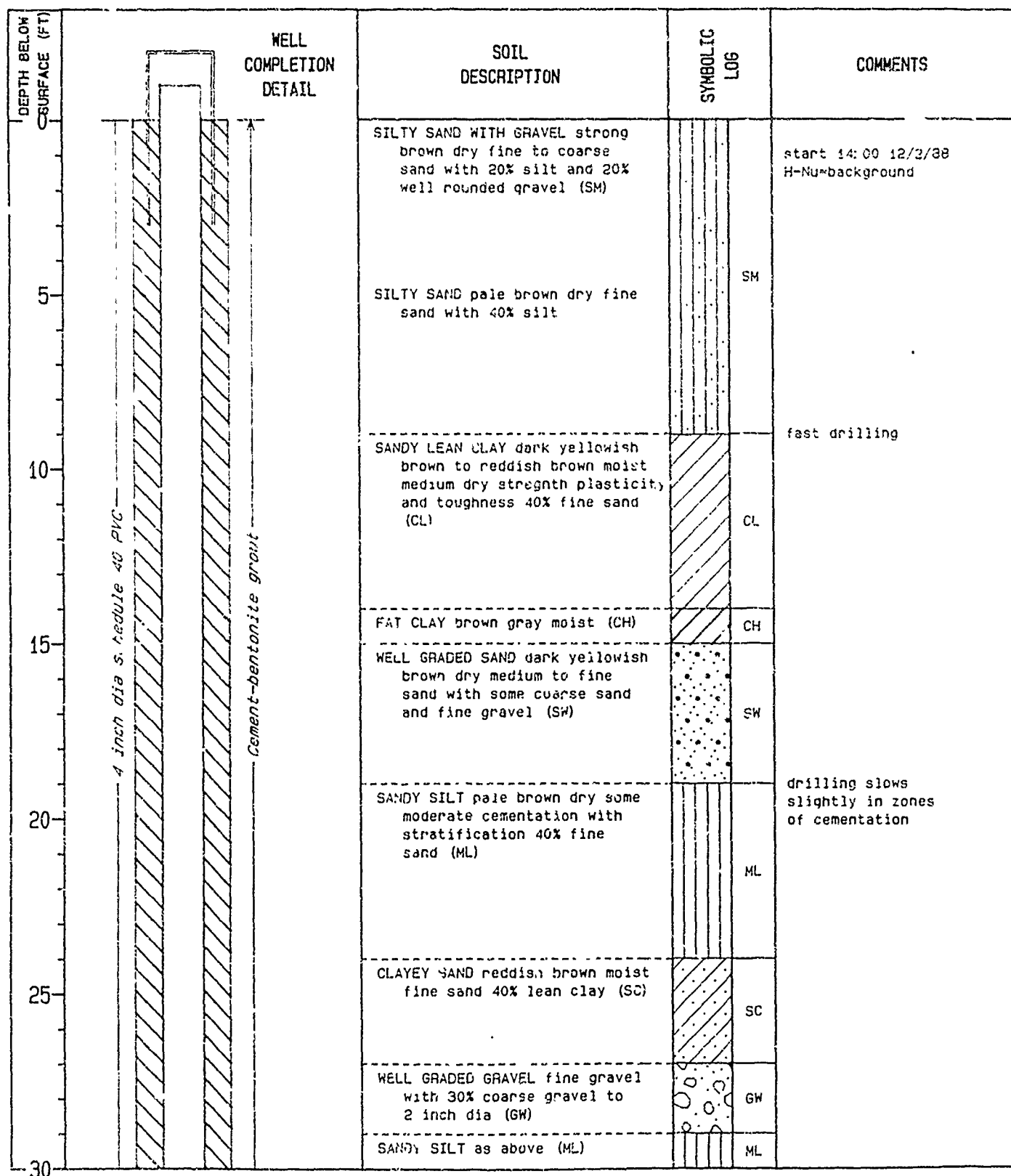
SOIL BORING LOG

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
ELEVATION 89.78 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 0.23 FT NGVD 3/27/89 START 12/1/88 FINISH 12/2/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		WELL GRADED SAND dark grayish brown wet fine to coarse sand with some 1 to 6 inch layers of fine sand (SW)	SW	producing much water
125		SILTY SAND yellowish brown saturated fine sand with 40% silt. (SM)	SM	
130		FAT CLAY yellowish brown high dry strength and toughness moderately cemented (CH)	CH	stop producing water
135				H-Nu=1.8 ppm downhole
140		BOTTOM OF BORING AT 141 FEET		
145				
150				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-56W	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.99 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.29 FT NGVD 3/27/88 START 12/2/88 FINISH 12/5/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-56W	SHEET 2 OF
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 69.99 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 9.29 FT NGVD 3/27/89 START 12/2/88 FINISH 12/5/88 LOGGER C. ELLIOTT

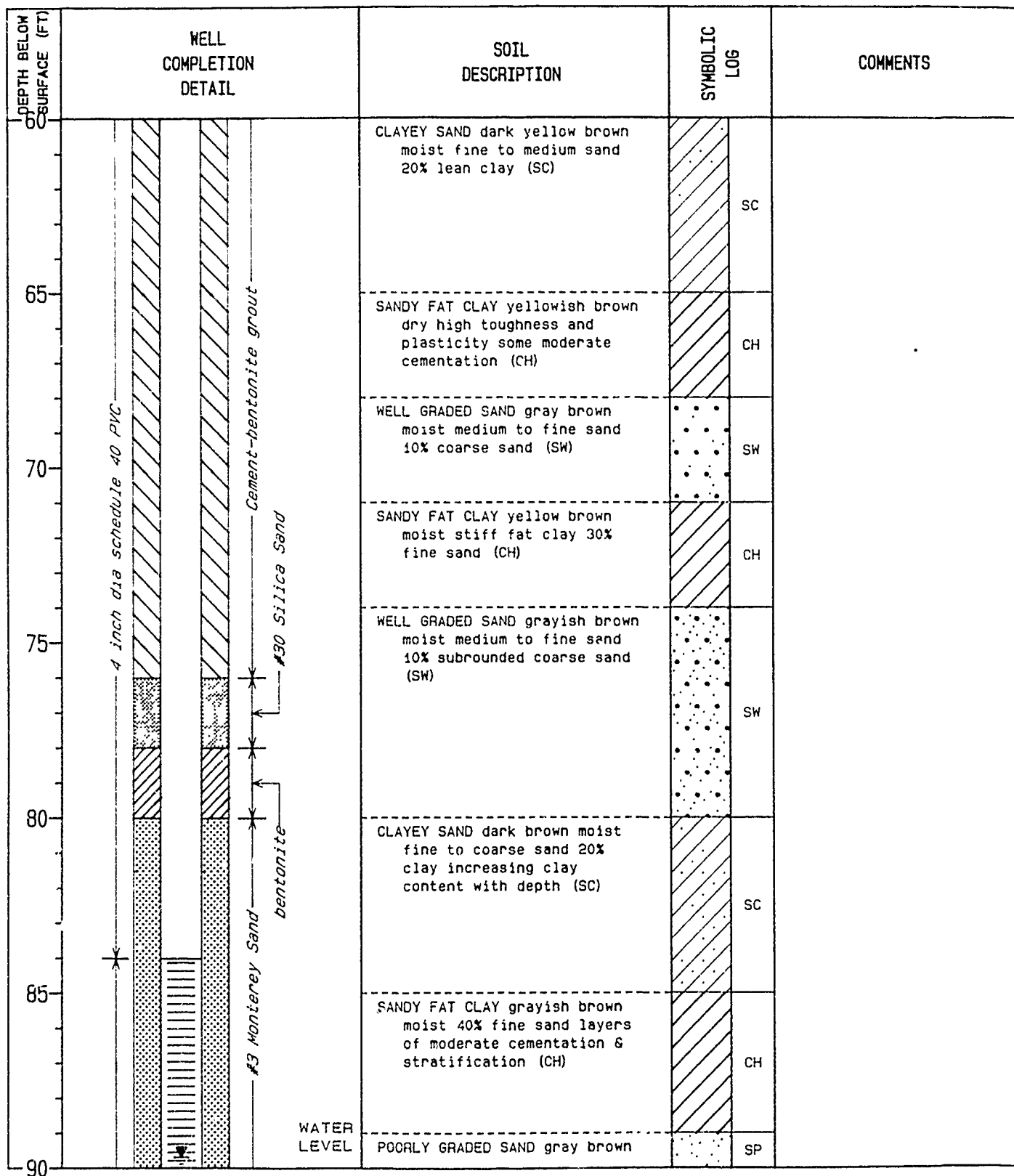
DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30		SANDY SILT as above (ML)	ML	
		POORLY GRADED SAND dark gray brown moist medium to fine sand (SP)	SP	
35		LEAN CLAY pale brown moist medium dry strength plasticity and toughness (CL)	CL	
40				
45		CLAYEY SAND dark yellow brown moist medium to fine sand 30% clay trace coarse sand and gravel (SC)	SC	
50		WELL GRADED SAND grayish brown moist fine to coarse sand (SW)	SW	
55				
60		stratified strongly cemented layers of sandstone		

4 inch dia schedule 40 PVC

Cement-bentonite grout

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 1-C-5GW	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION N. OF WEST DRAINAGE DITCH
 ELEVATION 89.99 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.29 FT NGVD 3/27/89 START 12/2/88 FINISH 12/5/88 LOGGER C. ELLIOTT



PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
1-C-56W

SHEET 4 OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION N. OF WEST DRAINAGE DITCH

ELEVATION 89.99 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

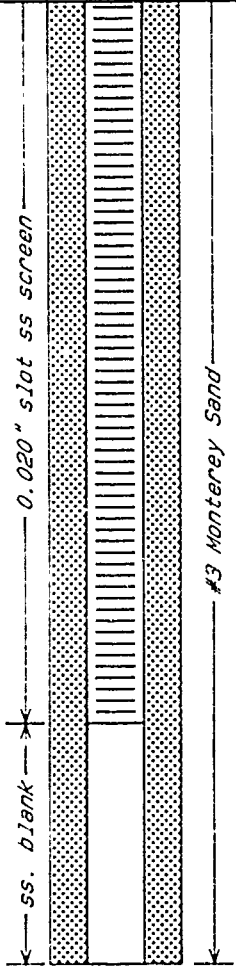
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 0.29 FT NGVD 3/27/89

START 12/2/88

FINISH 12/5/88

LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		POORLY GRADED SAND medium (SP)	SP	first water wet cuttings H-Nu=background =0.3 ppm H-Nu downhole=0.4ppm H-Nu on water from borehole = 0.4ppm producing lots of water
95		WELL GRADED SAND WITH GRAVEL moist fine to coarse sand 20% rounded fine gravel (SW) gravel increases with depth some thin layers of silty sand	SW	
100		WELL GRADED GRAVEL WITH SAND AND COBBLES wet fine to coarse gravel 20% coarse sand 20% cobbles to 4 inch diameter (GW)	GW	
105		interbeds of poorly graded coarse sand with gravel		
110		BOTTOM OF BORING AT 110 FEET		
115				
120				

SITE 2

PHOTOWASTE WATER TREATMENT PLANT,
INJECTION WELL, AND SLUDGE BASINS

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-1SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 92.41 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/5/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				SANDY SILT Fine sand (ML)	ML	09:35 Begin drill Hnu = BG
5	0096a	1.1	13-38-56	SILTY SAND Light brown, moist, very dense, fine sand (SM)	SM	
10	0096	1.5	12-22-40	SILTY SAND Medium brown, moist, very dense, rust colored staining (SM)		10:00
	0097	1.5	17-33-50			10:10 BAFB 0096 duplicate
15	0098a	1.5	12-26-36	SILT WITH SAND Medium brown, moist, hard, black flakes, fine sand (ML)		
20	0098	1.5	12-24-32	SILT WITH SAND Light brown, moist, very dense, black flakes, fine sand (ML)	ML	10:30
25	0099a	1.5	13-27-50/2 1/2"	SILT WITH SAND Light brown, moist, hard, black flakes (ML)		
30					CL	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-1SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 92.41 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/5/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0099	1.3	15-42-50/3"-100/5"	SANDY LEAN CLAY Light brown, moist, hard, rust and black staining (CL)	CL	11:00
35	0100a	1.5	24-25-31	SANDY SILTY CLAY Medium brown, moist, hard, gray lenses with black flakes (CL-ML)	CL/ML	
40	0100	1.5	19-36-49	SILTY SAND Medium brown, moist, very dense, gray lenses, black flakes (SM)	SM	11:35
45	0101a	1.5	20-22-34	SILTY SAND Medium brown, moist, very dense, black flakes (SM)	SM	
50	0101	1.5	20-22-50	LEAN CLAY WITH SAND Light brown, moist to wet, hard, mottled, black flakes (CL)	CL	12:00
				END BORING AT 51.5 FEET		12:10 End drill
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-2SB	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 86.30 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/6/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				SANDY SILT Medium brown, fine sand (ML)		15:30 Begin drill
5	0102a	1.0	3-5-8	SANDY SILT Medium brown, moist, low plasticity, sticky, some lean clay (ML)	ML	Hnu = BG
10	0102	1.1	6-12-18	SANDY SILT Medium brown, moist, low plasticity (ML)		15:55 Drive sample 1.0 ft recovery. Redrive sampler 6"
15	0103a	1.4	8-22-29	GRAVELLY WELL GRADED SAND WITH SILT Medium brown, wet, very dense, rounded to sub- angular gravel (SW)	SW	Driller notes: Gravels at 13.8 ft Water at 16 ft
20	0103	1.5	7-16-23	SILTY SAND Medium brown, moist, dense, fine sand (ML)	SM	Driller notes: Out of gravels at 18 ft 16:20
	0104	1.4	9-20-23	POORLY GRADED SAND Medium brown, moist, dense, fine grained, some silt (SP)		16:25 BAFB 0103 duplicate
25	0105a	1.5	9-11-20	POORLY GRADED SAND Light brown, dry, reddish brown stains, trace silt (SP)	SP	
30					SM	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-2SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLA.
 ELEVATION 86.30 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/6/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0105	1.5	14-39-56	SILTY SAND Light brown, moist, very dense, reddish brown stains (SM)	SM	16: 45 End drill. Pull 3 augers for night. 12/6/88 07: 55 Begin drill
35	0109a	1.5	24-18-20	WELL GRADED SAND Moist, dense, silt lense near tip (SW)	SW	Water in hole. Add drill steel to keep hammer above water.
40	0109	1.5	9-16-21	WELL GRADED SAND Gray, wet, dense, medium to coarse sand, some fine gravel (SW)	SW	08: 40
45	0110a	1.5	8-14-25	SANDY SILT Medium brown, moist, hard, fine sand (ML)	ML	Sampler is wet.
50	0110	1.5	7-23-72	SILTY CLAY WITH SAND Medium to light brown, wet, hard, black flakes in soil (CL-ML)	CL ML	09: 20 Overdrive sampler to get full recovery. 09: 25 End drill. Begin mixing grout.
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-3SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 83.8 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/7/88 FINISH 12/7/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				GRAVEL Fill (GW)	GW	14:10 Begin drill Hnu = BG LEL = 0.0%
5	0114	1.5	4-6-8	SILTY SAND Medium brown, moist, medium dense, fine grained (SM)	SM	14:15 Hnu = BG LEL = 0.0%
10	0115	1.5	6-5-6	SILTY SAND Medium brown, moist, medium dense, fine grained, reddish brown mottling (SM)		14:25 Hnu = BG LEL = 0.0%
	0116	1.5	10-6-16	SILTY CLAY Medium brown, moist, firm, reddish brown mottling (CL-ML)		14:35 BAFB 0115 duplicate Hnu = BG LEL = 0.0%
15	0117	1.5	7-8-9	SILTY CLAY Light brown, moist, firm, reddish mottling in soil, black flakes in soil (CL-ML)		14:55 Hnu = BG LEL = 0.0%
20	0118	1.5	11-22-32	SILTY CLAY Light brown, moist, firm, reddish brown mottling, moderate plasticity, crumbly (CL-ML)	CL ML	15:10 Hnu = BG LEL = 0.0%
25	0119	1.5	18-27-46	SILTY CLAY Light brown, moist, reddish brown mottling (CL-ML)		15:30
30					CL	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-3SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 83.8 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/7/88 FINISH 12/7/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0120	1.0 0.8	10-12-14 24/6*	LEAN CLAY Light brown, firm, reddish staining, black flakes in soil (CL)	CL	15: 40 BAFB 0120 duplicate
35	0121a	1.5	6-8-9	SANDY SILTY CLAY Light to medium brown, moist, firm, oxidation stains, low to moderate plasticity (CL-ML)	CL ML	Driller notes: Easy drilling at 34 ft.
40	0121	1.5	16-31-40	SILTY CLAY Medium brown, dry, hard, blocky, black flakes in soil (CL-ML)		16: 25
45	0122a	1.3	10-15-13	POORLY GRADED SAND WITH SILT Gray, moist, medium dense, reddish brown mottling (SP)	SP	
50	0122	1.5	12-24-29	SANDY LEAN CLAY Light gray brown, moist, very dense, black flakes, flakey (SC)	SC	16: 50 16: 55 End drill
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
2-C-4SB

SHEET 1 OF 1

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 83.61 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/8/88 FINISH 12/8/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				WELL GRADED GRAVEL Fill (GW)	GW	09:00 Begin drill Hnu = 86
5	0123	1.5	3-5-6	SANDY SILT Medium to dark brown, moist (ML)	ML	09:05
10	0124	1.5	14-14-13	WELL GRADED SAND WITH GRAVEL Moist, medium dense, angular to subangular gravel (SW)	SW	09:10
15	0125	1.5	8-20-19	SANDY SILTY CLAY Gray to reddish brown mottled, moist, firm, black flakes (CL-ML)	CL ML	09:20
20	0126	1.5	11-19-32	LEAN CLAY Light brown to red- dish brown, moist, firm (CL)	CL	09:30
25	0186	1.5	14-16-38	WELL GRADED SAND Medium brown, moist, dense (SW)	SW	09:45
	0187		8-21-35			09:50 BAFB 0186 duplicate
30				END BORING AT 28.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-558	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLA.
 ELEVATION 97.49 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 15 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/20/88 FINISH 12/20/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						09:00 Begin drill Hnu = BG at surface and in hollow stem
5	0292a	0.5	8	LEAN CLAY Reddish brown, moist, firm (CL)		
	0292	1.5	37-136-62	LEAN CLAY Brown, moist, hard, oxidation stains, black coloring (CL)	CL	09:45 Drive 12": pull: auger 12": drive 6"
10	0293	1.4	9-15-33	LEAN CLAY WITH SAND Tan, moist, firm, fine to medium sand (CL)		10:00 BAFB 0293 duplicate, not analyzed
15	0294	1.4	34-51-60	CLAYEY GRAVEL WITH SAND Brown, moist, well graded sand, fine sub- rounded gravel (GC)	GC	
20	0295a	0.5	30	SANDY LEAN CLAY Brown, moist, firm, well graded sand (CL)		
25	0295	1.4	19-49-60	LEAN CLAY WITH SAND Brown, moist, hard, fine to medium sand (CL)	CL	10:50
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-558	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 97.49 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 15 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/20/88 FINISH 12/20/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						
35	0296c	0.5	31	LEAN CLAY WITH SAND Brown, moist, firm, fine sand (CL)		
40	0296	1.4	31-57-69	LEAN CLAY Tan, moist, firm, oxidation stains (CL)		11:40
45	0297a	0.5	21	SILT Brown, moist, firm, mottled (ML)		
50	0297	1.5	18-24-58	LEAN CLAY Brown, moist, firm, black coloring in soil (CL)		13:10
55				END BORING AT 49.0 FEET		
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-6SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PL.
 ELEVATION 95.88 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 10 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/21/88 FINISH 12/21/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
						11:45 Begin drill Hnu = BG
5	0298a	0.5	27	LEAN CLAY Reddish brown, moist, firm (CL)		
10	0298	1.5	12-25-36	LEAN CLAY WITH SAND Dark brown, moist, hard, well graded (CL)		12:00
15	0299a	0.5	37	LEAN CLAY Tan, moist, firm, oxidation stains, organic material in soil (CL)	CL	Hnu = BG in hollow stem
20	0299	1.3	25-42-68	LEAN CLAY Reddish brown, moist, firm, mottled (CL)		12:20
25	0300a	0.5	38	SANDY LEAN CLAY Brown, moist, firm, well graded (CL)		
30	0300		18-22-45	LEAN CLAY Brown, moist, firm, black coloring (CL)		12:50

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
2-C-6SB

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT

ELEVATION 95.68 DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 10 DEG EAST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/21/88 FINISH 12/21/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					CL	
35	0301a	0.5	31	SILTY CLAY WITH SAND Brown, moist, firm, fine to medium sand (CL-ML)	CL ML	13:30 Fixing oil line on PTO. Pulled off rig on mob through mud. 14:10 Resume drill
40	0301	1.5	42-100-131	LEAN CLAY Tan, moist, hard, oxidation stains (CL)	CL	Drive 7"; pull; auger 7"; sleeves inside sampler are wet.
45	0302a	0.5	38	SILTY SAND Dark brown, moist, poorly graded medium sand (SM)	SM	
50	0302		42-53-150	LEAN CLAY WITH SAND Tan, moist, hard, well graded, oxidation stains (CL)	CL	14:50
				END BORING AT 50.0 F.T.		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-7SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 84.74 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/2/88 FINISH 12/2/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0090	1.1	4-7-11-19	SILTY CLAY Medium to dark brown, moist (CL-ML)	CL ML	09:05 Begin drill 09:10 Sample
5	0091a	0.5	4-9-22	SILTY SAND Medium brown, moist, dense, fine sand (SM)	SM	
10	0091	1.3	14-29-33	WELL GRADED GRAVEL WITH SILT Gray, moist, very dense (GM)	GM	Driller notes: Gravel at 8.7 ft 09:25
15	0092a	0.8	20-31-30	WELL GRADED GRAVEL WITH SILT Gray, wet, very dense, medium brown colored gravel (GM)	GM	Driller notes: Out of gravel at 12 ft In gravel at 14 ft
20	0092	1.2	12-28-17	SANDY LEAN CLAY Tan to light brown, moist, hard (CL)	CL	10:00 Hnu = BG
25	0093a	1.5	9-12-24	SANDY LEAN CLAY Tan to gray, moist, hard, oxidation stains (CL)	CL	
30					ML	

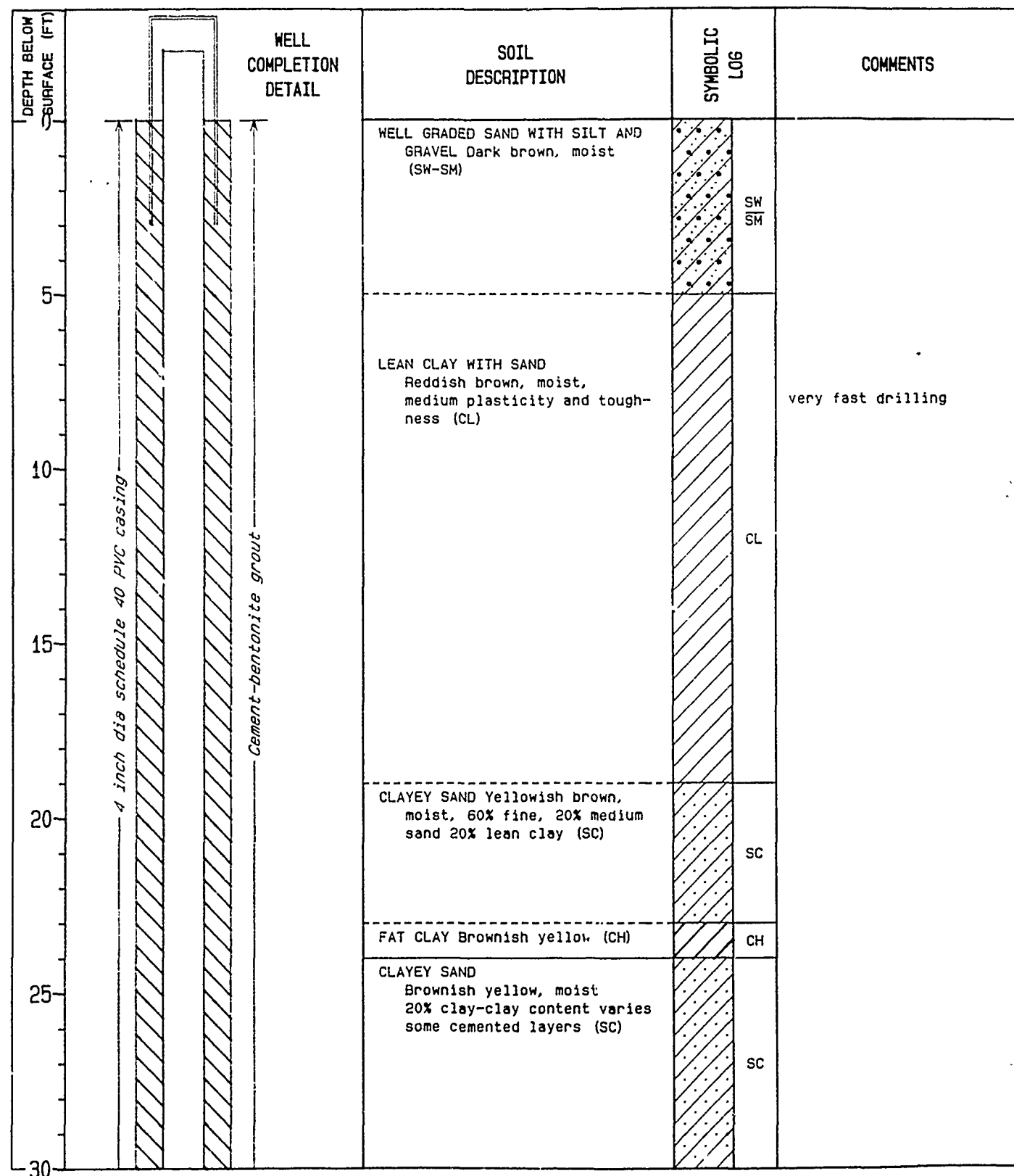
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-7SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE WATER TREATMENT PLANT
 ELEVATION 84.74 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/2/88 FINISH 12/2/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0093	1.4	10-25-30	SANDY SILT Medium brown to gray, moist, hard, fine sand (ML)	ML	10:30 Hnu = 86
35	0094a	1.5	9-15-28	POORLY GRADED SAND Reddish brown, moist, dense (SP)	SP	
40	0094	1.5	12-26-39	SANDY SILT Tan to light brown, moist, hard, fine sand, sticky in places, some reddish staining (ML)	ML	11:05
45	0095a	1.5	13-30-42	SANDY SILT Medium brown, moist, hard, fine sand (ML)	ML	
50	0095	1.5	25-50/3*-100/5 1/2*	SANDY LEAN CLAY Tan to light brown, moist, hard, fine sand, sticky (CL)	CL	11:45
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-16W	SHEET 1 OF 6
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION INJECTION WELL 2
 ELEVATION 83.46 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -0.48 FT NGVD 3/27/89 START 12/5/88 FINISH 12/6/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-16W	SHEET 2 OF 6
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION INJECTION WELL 2
 ELEVATION 83.46 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -0.48 FT NGVD 3/27/88 START 12/5/88 FINISH 12/6/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC casing</div> <div>Cement-bentonite grout</div>	CLAYEY SAND Brownish yellow, moist 20% clay-clay content varies some cemented layers (SC)	SC	
35				
40		FAT CLAY Yellowish red, moist medium-high toughness and dry strength (CH)	CH	clay clogging bit drilling slows
45		SANDY FAT CLAY Dark yellowish brown, moist fat clay with 40% fine sand (CH)	CH	
50		LEAN CLAY WITH SAND Brownish yellow, moist, med. plasticity and toughness (CL)	CL	fast drilling
55		WELL GRADED SAND Dark yellowish brown, moist fine sand with 10% sub rounded gravel (SW)	SW	
60				

PROJECT NUMBER
SAC24339.RI.04

BORING NUMBER
2-C-1GW

SHEET 3 OF 6

SOIL BORING LOG

PROJECT BEALE AFB

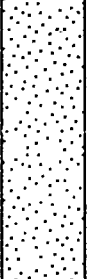
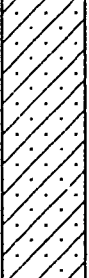

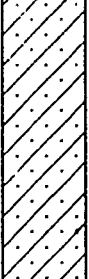

LOCATION INJECTION WELL 2

ELEVATION 83.46 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE -0.48 FT NGVD 3/27/89 START 12/5/88 FINISH 12/6/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS	
60	<div>4 inch dia schedule 40 pvc casing</div> <div>Cement-bentonite grout</div> <div>WATER LEVEL</div>	WELL GRADED SAND as above (SW)			
		layer of fat clay			
65					
		CLAYEY SAND Strong brown, moist fine sand (SC)			
		clay content increasing			
70					
		FAT CLAY Strong brown (CH)			
		CLAYEY SAND Strong brown, moist well graded sand, 20% clay with layers of fat clay (SC)			
75					
		layer of well cemented clay			
80					
		SILTY SAND Strong brown (SM)			
90					

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 2-C-1GW	SHEET 4 OF 6
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION INJECTION WELL 2
 ELEVATION 83.46 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -0.48 FT NGVD 3/27/89 START 12/5/88 FINISH 12/6/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90	<div>4 inch dia schedule 40 PVC casing</div> <div>Cement-bentonite grout</div>	SILTY SAND Strong brown (SM)	SM	wet cuttings first water
		FAT CLAY Yellowish red (CH)	CH	
		SILTY SAND as above, Strong poorly graded fine sand (SM)	SM	
95		WELL GRADED SAND Dark brown, wet trace fine gravel (SW)	SW	no water H-Nu=0.3 ppm
100		CLAYEY SAND WITH GRAVEL Dark brown, wet, 30% clay 30% gravel (SC)	SC	
105		FAT CLAY WITH SAND Strong brown moist high plasticity and toughness clay with 20% fine to medium sand (CH)	CH	
110				
115		POORLY GRADED SAND Olive brown moist medium to fine with trace silt (SP)	SP	producing water H-Nu=0.3 ppm
120				

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
2-C-16W

SHEET 5 OF 6

SOIL BORING LOG

PROJECT BEALE AFB

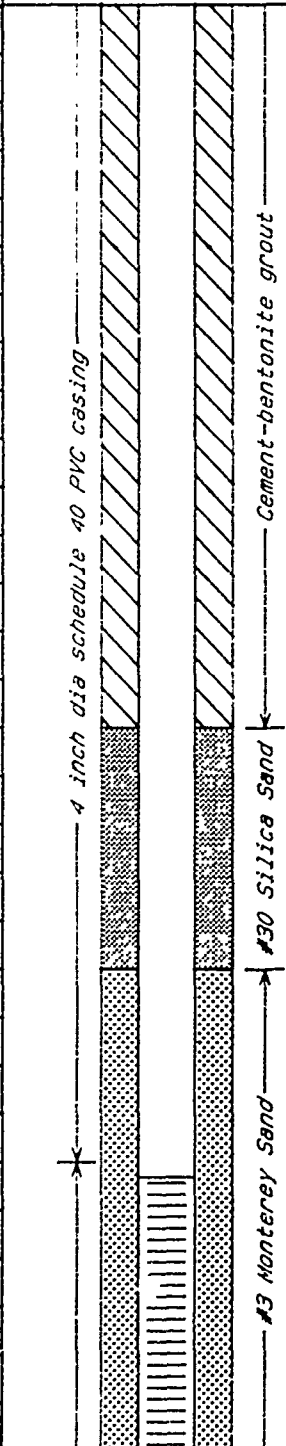
LOCATION INJECTION WELL 2

ELEVATION 83.46 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE -0.48 FT NGVD 3/27/89 START 12/5/88 FINISH 12/6/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		POORLY GRADED SAND as above (SP)	SP	stop producing water
125		CLAYEY SAND WITH GRAVEL Light yellowish brown, wet 20% subrounded well graded gravel, 40% well graded sand, 40% clay (SC)	SC	
130		LEAN AND FAT CLAY Light yellowish brown, moist interbedded variable sandy lean clay with gravel and sandy fat clay with gravel	CL CH	139 to 142 feet minor water-steady dripping production
135				water stops
140				
145				
150				

PROJECT NUMBER 04-15-11-11	BORING NUMBER 11W	SHEET 1	OF 1
-------------------------------	----------------------	------------	---------

SOIL BORING LOG

PROJECT 04-15-11-11	LOCATION INDUSTRIAL W. 1
ELEVATION 89.46	DRILLING CONTRACTOR AYNE ENVIRONMENTAL SERVICES
DRILLING METHOD AND EQUIPMENT AIR-ROTOR, 10" DIAMETER	
WATER LEVEL AND DATE 12.10.88	START 12.5.88
FINISH 12.6.88	LOGGER C. E. JETT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
150		15' - 16' BROWN, MOIST, FINE SAND WITH 50% CLAY, 10%		
155				
160		16' - 17' GRAVELLED SAND WITH GRAVEL, 10% GRAVEL, 10% CLAY, 10% SAND		start producing water
165		17' - 18' GRAVELLED SAND WITH GRAVEL, 10% GRAVEL, 10% CLAY, 10% SAND		water rises to a steady, visible
170		18' - 19' GRAVELLED SAND WITH GRAVEL, 10% GRAVEL, 10% CLAY, 10% SAND		continuous water production 1.5 to 2.0 gpm on water and 1.5 to 2.0 gpm on water and 1.5 to 2.0 gpm on water
175				
180				

SITE 3

FIRE PROTECTION TRAINING AREA

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.A1.04	BORING NUMBER 3-C-198	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 111.43 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/12/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLK COUNT			
0	0214	1.5	14-15-43	SILT WITH SAND Light tan, moist, hard, mottled (ML)	ML	10:10 Begin drill Hnu = 86 LEL = 0.0%
5	0215a	1.5	11-22-29	SILTY CLAY Light brown, moist, hard, reddish mottled, black flakes, crumbly (CL-ML)	CL	
10	0215	1.4	17-37-60	SILTY CLAY Light brown, dry, hard, black flakes (CL-ML)	CL	10:35 This area appears to have had roads or buildings over it. Sample 0216 not taken.
15	0217a	1.5	20-42-50/3 1/2"	SILTY SAND Gray brown, dry, very dense, reddish mottling (SM)	SM	
20	0217	1.5	17-24-50/1"-85/6"	SILTY SAND Reddish brown, dry, very dense (SM)	SM	11:00
	0218	1.5	50-50/4"	SILTY SAND Brown, dry, very dense (SM)	SM	11:20 BAFB 0217 duplicate
25	0219a	1.5	12-35-50/5"	SANDY LEAN CLAY Medium to dark brown, moist, black flakes (CL)	CL	
30					ML	Driller notes Gravel at 28 ft Out of grave at 29 ft

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-198	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJEC BEALE AFB LOCATION FIRE PROTECTION TRAINING AREA
 ELEVATION 111.43 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/12/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0219	1.1	17-47-100/4*	SANDY SILT Light brown, dry, hard, contains subangular fine gravel (ML)		12:00
35	0220a	1.4	11-13-30	SILT WITH SAND Gray brown, dry, hard, fine sand, white crusting for 3' (ML)	ML	12:30 - 12:55 Lunch
40	0220	1.5	11-17-50	POORLY GRADED SAND WITH LEAN CLAY Gray brown, dry, dense (SP)	SP	13:25
45	0221a	1.5	14-33-50/5*	WELL GRADED SAND Medium brown, moist, very dense (SW)	SW	14:00
50	0221	1.5	26-50-76	WELL GRADED SAND Gray, moist, very dense (SW)		14:10 End drill
55				END BORING AT 51.5 FEET		
60						

PROJECT NUMBER SAC24359.R1.04	BORING NUMBER 3-C-2SB	SHEET : OF :
SOIL BORING LOG		

PROJECT BEALE A B LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 103.99 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/13/88 LOGGER S. MCNEILTH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOCK COUNT			
0	0222	1.05	14-59-36	SILT Brown, dry, some fine gravel (ML)		16:20 Begin drill Sample Hnu in breathing zone = BG LEL = 0.0% Hnu hollow stem = 25ppm Go to Level C
5	0223	1.5	14-50-100, 4'	SILT Brown, dry, some fine sand (ML)	ML	16:45 Hnu sample = 20ppm
10	0224	1.5	34-50 4'-33	SILT Brown, with hard lumps of lithified material (ML)		17:05 Hnu hollow stem = 230ppm LEL = 0.0%
15	0225	1.5	30-40-90	POORLY GRADED SAND WITH SILT Brown (SP)	SP	08:40 Hnu cutting = 30ppm
20	0250	1.5	25-57-107	SILT Light yellowish brown, dry, crumbly, some zones of iron oxidation (ML)	ML	09:00
				END BORING AT 21.5 FEET		
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-3SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 103.50 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/13/88 FINISH 12/13/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0261	1.4	10-24-19	SILT WITH LEAN CLAY AND GRAVEL Dark brown, moist, firm (ML)	ML	11:10 Begin drill Sample
5	0262	1.5	21-45-50/3"-100	SILTY CLAY WITH SAND Medium brown, dry, firm, fine sand, crumbly (CL-ML)	CL ML	Hnu cuttings = 30ppm 11:25
	0263	1.5	26-77-100/5"	SANDY LEAN CLAY Light brown, dry, firm, fine sand, black flakes (CL)	CL	11:35 BAFB 0262 duplicate
10	0264	1.5	32-100/4"	POORLY GRADED SAND Gray with reddish brown mottling, dry, very dense (SP)	SP	11:55 12:07 - 12:45 Lunch
15	0265	1.5	25-91-24	POORLY GRADED SAND Dark gray, dry, loose (SP)		12:55
20	0266	1.5	16-30-76	SANDY SILT Medium brown, dry, hard, mottled, black flakes (ML)	ML	13:25
				END BORING AT 21.5 FEET		
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-4SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 107.83 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/13/88 FINISH 12/14/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0267	1.5	7-9-9	ASPHALTIC CONCRETE AND GRAVEL SILTY SAND WITH GRAVEL Black, moist, soft, subrounded gravel, odors (SM)	GW SM	15:20 Begin drill 15:25 Sample
5	0268a	1.5	21-56-84	SILT WITH SAND Gray, dry, hard, brown mottling, crumbly, medium grained sand (ML)	ML	15:50 End drill 12/14/88 08:15 Begin drill Hnu near boring =60 ppm
10	0268	1.5	19-66-80	SANDY SILT Grayish brown, dry hard, crumbly, mottled (ML)		09:15 Hnu sample = 18ppm
15	0269a	1.0	25-49-50	CLAYEY SAND Gray, dry, very dense, white crusting (SC)	SC	
20	0269	1.2	28-115/6*	CLAYEY SAND Gray to brown, dry, very dense, crumbly, weakly cemented (SC)		09:55 Hnu cuttings = 60ppm
25	0270a	1.5	17-48-50/5*	SILT WITH SAND Grayish brown, dry, dense, crumbly, oxidation stains (ML)	ML	10:15 Driller notes: Gravel at 28 ft. Out of gravel at 29.5 ft.
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-4SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 107.83 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/13/88 FINISH 12/14/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0270	1.0	30-88	SANDY SILT Dry, hard, reddish staining, weakly cemented (ML)	ML	10:30
35	0271a	1.5	13-21-30	SANDY LEAN CLAY Dry, hard, fine sand, black stains (CL)	CL	11:30
40	0271	1.4	18-30-83	SANDY LEAN CLAY Gray brown, dry, very dense, weakly cemented (CL)	CL	
45	0272a	1.5	13-12-22	CLAYEY SAND Brown, dry, dense, white crusting at one location (SC)	SC	
50	0272	1.5	12-30-44	WELL GRADED SAND Dark gray, dry, dense (SW)	SW	11:55 Sample and end drill
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-55B	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 104.19 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 23 DEG - NORTH 31 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/88 FINISH 12/14/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0240a	0.5	13	LEAN CLAY Brown, moist (CL)	CL	08:05 Begin drill 08:07 Hnu = 86 08:13 Hnu = 86 LEL = 0.0%
5	0240	1.3	32-78-38	LEAN CLAY Brown, moist, tough, mottled (CL)		08:25 Hnu = 50ppm at boring. Go to Level C. 08:50 Resume drill 08:55 Hnu = 86 LEL = 1% Drive 0240 12"; pull; auger 12"; drive 6"
10	0241	1.5	28-75-48	LEAN CLAY Gray, moist, brittle, (CL)		09:20 Drive 12"; pull; auger 12"; drive 6" Hnu hollow stem = 20ppm Hnu sample tip = 2ppm LEL hollow stem = 1%
15	0242	1.4	25-49-79	SILTY SAND Gray, moist, oxide stains in upper 6 inches, some fine sand (SM)	SM	09:40 Hnu hollow stem = 20ppm Hnu above hollow stem = 2 ppm Hnu sample tip = 5ppm
20	0243a	0.5	38	SILT Gray, moist, oxidation stains (ML)	ML	
25	0243	1.4	26-55-107	SILT WITH SAND Gray, moist, white mineralization in seams in soil (ML)		Hnu hollow stem = 20ppm Hnu sample tip = 1ppm Resume Level D
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-558	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREA
 ELEVATION 104.19 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 853 ANGLE 29 DEG - NORTH 31 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/89 FINISH 12/14/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	<input type="checkbox"/> 0244a	0.5	66	SILT WITH SAND Brown, moist, fine grained sand (ML)	ML	Driller notes: Gravel at 33 ft Cobbles in cuttings
35	<input checked="" type="checkbox"/> 0244	1.5	33-88-62	SILTY CLAY WITH SAND Brown, moist, well graded sand (CL-ML)	CL ML	
40	<input type="checkbox"/> 0245a	0.3	62	SANDY SILT Brown, dry, hard, fine sand (ML)	ML	11:10 Drive 12": pull; auger 12": drive 6" Hnu sample = 66
45	<input checked="" type="checkbox"/> 0245		23-57-140	SANDY SILT Brown, moist, fine sand (ML)		
50				END BORING AT 48.5 FEET		11:55
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-6SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 107.83 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/88 FINISH 12/15/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0273	1.3	24-39-42	SANDY LEAN CLAY Gray, dry, hard, reddish mottling, crumbly, black flakes (CL)	CL	10:35 Begin drill 15 - 20 mph wind Hnu hollow stem = 20ppm
5	0274a	1.5	10-20-33	LEAN CLAY Dry, hard, reddish brown stains, black flakes (CL)		
10	0274	1.5	19-61-24	SANDY LEAN CLAY Dry, hard, mottled, fine sand (CL)		15:00
	0275	1.0	80-35-100	SANDY LEAN CLAY White crusting, dry, hard, fine sand (CL)		15:10 BAFB 0274 duplicate
15	0276a	1.0	19-50/5*	SANDY LEAN CLAY Gray, dry, hard, white crusting throughout sample, fine sand (CL)		
20	0276	1.5	14-64-90	SANDY LEAN CLAY Dry, very hard, oxidation stains, fine sand (CL)		15:35
25	0277a		17-24-36	SANDY LEAN CLAY Medium to light brown, dry, hard, black flakes, crumbly (CL)		
30						Driller notes: Gravel at 29 ft

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-658	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 107.83 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/88 FINISH 12/15/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0277	1.5	26-39-61	SANDY LEAN CLAY Light brown, dry, hard white crust (CL)	CL	Gravel at sample depth. Sample at 31 ft.
35	0278a	1.5	10-18-25	LEAN CLAY Medium to light brown, moist, hard, oxide staining (CL)		30 mph wind Wind gust to 50 mph
40	0278	1.5	15-31-65	CLAYEY SAND Tan, dry, very dense, oxide stains (SC)	SC	16:40 Sample End drill 12/15/88 07:50 Begin drill
45	0279a	1.4	9-27-43	POORLY GRADED SAND Gray, dry, very dense, 2mm black seam in sample (SP)	SP	Hnu - 13ppm
50	0279	1.4	8-34-79	CLAYEY SAND Brown, dry, very dense, oxide staining (SC)	SC	08:35
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.A1.04	BORING NUMBER 3-C-7SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIFE PROTECTION TRAINING AREAS
 ELEVATION 104.38 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/4/89 FINISH 1/4/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0363	1.5	10-22-17	SILT WITH SAND Gray, moist, dense, black flakes and streaks, fine sand (ML)	ML	11:15 Begin drill Sample Hnu sample = 130ppm Level C protection
5	0364	1.5	29-82-119	LEAN CLAY WITH SAND Gray and brown, dry, very hard, crumbly, fuel stains (CL)	CL	11:45 Hnu cuttings = 30ppm
	0365	1.5	22-71-126			12:00 BAFB 0364 duplicate Hnu sample = 5ppm
10	0366	1.5	23-146-130	SANDY LEAN CLAY Gray, dry, very hard, reddish brown stains, fine sand (CL)		12:15 12:25 - 13:15 Lunch Level D protection after lunch
15	0367	1.5	32-58-87	CLAYEY SAND Light gray to brown, very dense, crumbly (SC)	SC	15:35 Hnu cuttings = 40ppm
20	0368	1.5	11-84-132	CLAYEY SAND Brown to light brown, dry, very dense, crumbly, gray mottled (SC)		15:45
				END BORING AT 21.5 FEET		
25						
30						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
3-C-8SB

SHEET 1 OF 1

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION FIRE PROTECTION TRAINING AREA.

ELEVATION 104.22

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/5/89 FINISH 1/5/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0369	1.5	7-15-13	SANDY LEAN CLAY Gray, wet, brown and black stains, subrounded gravel (CL)	CL	11:05 Begin drill Sample Hnu sample = 35ppm
5	0370	1.4	30-68-119	SANDY LEAN CLAY Light brown, very hard, discoloring from fuel, crumbly (CL)		11:25 Hnu cuttings = 5ppm
10	0371	1.5	40-200/3'-167	POORLY GRADED SAND Gray to reddish brown, dry, very dense, weakly cemented chunks (SP)	SP	11:45 Hnu cuttings in drum = 18pp.
15	0372	1.4	34-68-160/2"	SILTY CLAY Light brown, dry, very hard, oxide stains throughout, crumbly (CL-ML)	CL ML	12:10 Hnu cuttings = 5ppm
20	0373	1.5	43-69-84	SANDY SILT Light to medium brown, dry, very hard, fine sand, crumbly (ML)	ML	12:30
21.5				END BORING AT 21.5 FEET		12:45 End drill
25						
30						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
3-C-9SB

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION FIRE PROTECTION TRAINING AREAS

ELEVATION 106.54

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 853 ANGLE 30 DEG - SOUTH 70 DEG EAST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/11/89 FINISH 1/11/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				WELL GRADED GRAVEL Silty (GW)	GW	08:15 Begin drill
1	0322	1.5	34-35-78	SANDY LEAN CLAY WITH GRAVEL Brown, wet (CL)		08:20 Hnu hollow stem = 0.4ppm Hnu sample tip = 8G
2	0323a	0.5	54	GRAVELLY LEAN CLAY Dark brown, wet, fine gravel (CL)		
5						
8	0323	1.5	31-101-51	LEAN CLAY Brown, moist, firm, blocky (CL)		08:50 Drive 12"; pull; auger 12"; drive 6"
10					CL	
12	0324a	0.5	32	LEAN CLAY Brown, moist, hard, blocky (CL)		
15						
18	0324	1.5	39-61-50	LEAN CLAY WITH SAND Brown, moist, firm, fine gravel (CL)		09:45 Drive 12"; pull; auger 12"; drive 6"
20				SANDY SILT Brown, moist, fine grained sand (ML)	ML	
22	0325a	0.5	51	SILTY CLAY Brown, moist, firm, oxidation stains (CL-ML)	CL ML	
25						
28	0325	1.5	60-72-94	LEAN CLAY Brown, moist, hard, oxidation stains (CL)	CL	10:25 Drive 6"; pull; auger 6"; drive 6"; pull; auger 6"; drive 6"
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-9SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREA
 ELEVATION 106.54 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 70 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/11/89 FINISH 1/11/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					CL	
35	0325a	0.5	60	SILTY CLAY Tan. moist, hard, blocky, oxidation stains (CL-ML)	CL ML	Driller notes: Gravel/cobbles, rotation siezing
40	0326	1.5	40-65-85	LEAN CLAY WITH GRAVEL Brown, moist, firm, fine sub- angular gravel (CL)		
45	0327a	0.5	28	LEAN CLAY Brown, moist, firm, blocky (CL)	CL	
50	0327	1.5	39-66-77	LEAN CLAY Brown, moist (CL)		13: 50
55				END BORING AT 49.0 FEET		
60						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
3-C-10SB

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION FIRE PROTECTION TRAINING AREAS

ELEVATION 106.88

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - NORTH 55 DEG EAST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/12/89 FINISH 1/12/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0328	1.4	43-28-41	WELL GRADED GRAVEL Silty (GW)	GW	07:35 Begin drill
1	0329a	0.5	35	GRAVELLY LEAN CLAY Dark gray, moist, firm, well graded gravel (CL)		13:55 Drive 0328 in mock-up area
5	0329	1.4	25-52-72	LEAN CLAY Reddish brown, moist, firm, with sand above 8 ft (CL)		07:45 Drive 0329a
10	0330a	0.5	47	LEAN CLAY Tan, moist, hard (CL)		Hnu sample = 1.5ppm
15	0330	1.4	100-52-62	SANDY SILT Tan, moist, firm, fine grained (ML)		LEL = 0.0%
20	0331a	0.6	56	SILTY SAND Brown, moist, fine grained (SM)		Hnu cuttings = 1ppm
25	0331	1.4	50-35-30	SANDY SILT Brown, moist, firm, fine grained (ML)		Hnu breathing zone = BG
30				SILTY SAND Brown, moist, well graded sand (SM)		08:00 Water from mock-up pond in boring. Pull rig ahead 4 ft and continue boring.

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-10SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION FIRE PROTECTION TRAINING AREAS
 ELEVATION 106.88 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - NORTH 55 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/12/89 FINISH 1/12/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0407a	0.5	58	SANDY LEAN CLAY Brown, moist, white powder, seam at bottom of sample (CL)	SM	
35	0407	1.4	27-34-75	LEAN CLAY Brown, moist, firm, black coloring (CL)	CL	Driller notes: Cobbles, gravel 11:00
40	0408a	0.5	61	LEAN CLAY Brown, moist, firm, black coloring (CL)		
45	0408	1.4	100-33-33	SILTY CLAY Brown, moist, hard, dry hard lumps in soil, blocky (CL-ML)	CL ML	11:40 to 12:10 Lunch 12:40 Drive 6"; pull; auger 6"; drive 12" End drill
50				END BORING AT 49.0 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-1GW	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF MOCK PLANE FPTA NO 2
 ELEVATION 105.59 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -10.86 FT NGVD 3/28/89 START 12/13/88 FINISH 12/13/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<p>4 inch dia schedule 40 PVC</p> <p>Cement-bentonite grout</p>	CLAYEY SAND dark yellow brown moist well graded sand 40% lean clay trace gravel (SC)	SC	start 9:50 12/13/88
5		LEAN CLAY brownish yellow moist medium toughness plasticity 10% well graded subangular gravel (CL)	CL	fast drilling
10		FAT CLAY brownish yellow dry high dry strength (CH)	CH	H-Nu=0.3 ppm
15		LEAN CLAY yellowish brown moist medium dry strength toughness plasticity (CL)	CL	fast drilling
20		SILT strong brown moist fast dilatancy low toughness plasticity (ML)	ML	H-Nu=0.6 ppm downhole
25		LEAN CLAY light yellow brown moist medium toughness and plasticity (CL)	CL	drilling slows clay clogs discharge hose
30		FAT CLAY dark yellowish brown dry high dry strength (CH)	CH	
		LEAN CLAY WITH SAND yellowish brown moist medium toughness plasticity 20% fine sand (CL)	CL	H-Nu=1.6 ppm downhole
		moderately cemented layers		



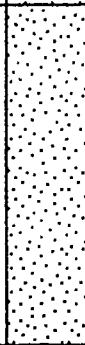


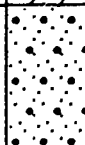
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-1GW	SHEET 2 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF MOCK PLANE FPTA NO 2
 ELEVATION 105.59 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -10.86 FT NGVD 3/28/89 START 12/13/88 FINISH 12/13/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-antinite grout</div>	LEAN CLAY WITH SAND as above (CL)	CL	H-Nu=1.5 ppm downhole
35		CLAYEY SAND WITH GRAVEL dark yellowish brown well graded sand 20% clay 20% subangular fine gravel (SC)	SC	
40		SANDY LEAN CLAY dark yellow brown moist med toughness plasticity 30% fine sand (CL)	CL	
45		POORLY GRADED SAND WITH SILT yellowish brown moist fine sand 10% silt trace coarse sand and gravel (SP-SM)	SP SM	H-Nu=1.3 ppm downhole H-Nu=0.6 ppm on cuttings
50		LEAN CLAY grayish brown moist medium toughness and plasticity slow dilatency (CL) layers with strong cement little structure	CL	
55		CLAYEY SAND dark yellowish brown fine sand 20% clay layers with moderate to strong cementation (CH)	SC	
60				H-Nu=2.5 ppm down hole -1.0 ppm on cuttings

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-1GW	SHEET 3 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF MOCK PLANE FPTA NO 2
 ELEVATION 105.59 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -10.96 FT NGVD 3/28/89 START 12/13/88 FINISH 12/13/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		CLAYEY SAND as above (SC)	 SC	
65		WELL GRADED SAND dark yellow brown moist fine to medium sand 20% subrounded coarse sand layers with moderate cementation (SW)	 SW	H-Nu=3.1 ppm downhole =1.6 ppm on cuttings
70		as above coarse sand content increases		
75		POORLY GRADED SAND dark yellow brown moist medium sand 40% fine sand (SP)	 SP	H-Nu=2.1 ppm downhole =0.4 ppm on cuttings
80		thin lenses of fat clay		
85		LEAN CLAY light yellow-brown medium dry strength plasti- city and toughness (CL)	 CL	
		CLAYEY SAND yellowish brown moist fine sand 30% clay (SC)	 SC	
		WELL GRADED SAND dark yellow brown moist fine to medium sand 10% coarse sand trace gravel and cobbles (SW)	 SW	H-Nu=3.2 ppm downhole =1.7 ppm on cuttings
90				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-16W	SHEET 4 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF MOCK PLANE FFTA NO 2
 ELEVATION 105.59 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -10.86 FT NGVD 3/28/89 START 12/13/88 FINISH 12/13/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95		WELL GRADED SAND dark yellow brown fine to medium sand 10% coarse sand trace gravel and cobbles some layers of moderate to strong cementation with no structure (SW)	SW	H-Nu=2.5 ppm downhole =0.7 ppm on cuttings
100		FAT CLAY pale brown dry medium to high dry strength (CH)	CH	
105		SILTY SAND brownish yellow moist fine sand 40% silt (SM)	SM	H-Nu=1.5 ppm downhole =0.4 ppm on cuttings
110		POORLY GRADED SAND brownish yellow moist fine sand trace silt layers of moderate cementation (SP) increased silt and coarse sand content	SP	fast drilling through silts and sands
115		SILTY SAND dark yellow brown moist fine to medium sand 30% silt trace coarse sand (SM)	SM	H-Nu=1.6 ppm downhole =0.5 ppm cutings
120		POORLY GRADED SAND coarse (SP)	SP	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 3-C-1GW	SHEET 5 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF MOCK PLANE FPTA NO 2
 ELEVATION 105.59 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE -10.86 FT NGVD 3/28/89 START 12/13/88 FINISH 12/13/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120	<p>0.020" slot ss screen</p> <p>#3 Monterey Sand</p>	POORLY GRADED SAND dark yellow brown wet coarse sand 30% medium sand 10% fine gravel (SP)	SP	
125		FAT CLAY yellowish brown dry medium to high dry strength (CH)	CH	dry cuttings drilling slows
130		SANDY FAT CLAY yellowish brown moist 40% well graded sand (CH)	CH	H-Nu=1.0 ppm downhole =0.5 ppm cuttings
135		reddish brown dry	CH/SP	clay clogs discharge hose
140		strong brown dry		H-Nu=0.5 ppm downhole =0.3 ppm cuttings
145		BOTTOM OF BORING AT 140 FEET		
150				



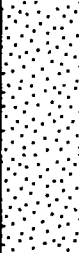


SITE 4

BATTERY SHOP DRY WELL

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 4-C-1SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION BATTERY SHOP DRY WELL
 ELEVATION 119.87 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 26.5 DEG - NORTH 30 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/17/89 FINISH 1/18/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY WITH SAND Brown, moist (CL)		Boring 11.4 ft south of neutralized acid pit. 08:45 Begin drilling
5	0409a	0.5	37	LEAN CLAY WITH FINE GRAVEL Orange brown, moist, firm, completely weathered sub-rounded gravel (CL)		Hand cuttings - BG
				COARSE GRAVEL Subrounded, as seen in cuttings (GP)		09:35 Refusal when driving sampler
10	0409	1.5	57-50-54	WELL GRADED SAND Tan, moist, very dense (SW)		10:45 Pin on hydraulic ram breaks 15:25 Resume drill 16:10 Sample 0409 16:30 Sample 0410 BAFB 0409 duplicate 16:40 End drill 1/18/89 08:10 Begin drill
15	0410	1.5	47-120-62			
20	0411	1.3	29-45-70	WELL GRADED SAND Gray, moist, very dense (SW)		
25	0412a	1.3	10-16-50/4*	SANDY LEAN CLAY WITH GRAVEL Medium brown, wet, very hard, well graded sand, subrounded fine gravel (CL)		
30	0412	1.5	20-135/5 1/2*-80	SANDY SILT Reddish brown, dry, very hard, well graded sand, crumbly (ML)		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 4-C-1SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION BATTERY SHOP DRY WELL
ELEVATION 119.87 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 26.5 DEG - NORTH 30 DEG EAST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/17/89 FINISH 1/18/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					ML	
35	0413a	1.0	35-50/4*	SILTY SAND Tan, dry, very dense, coarse sand (SM)	SM	Hnu = BG
40	0413	1.5	35-59-60	WELL GRADED SAND Gray, dry, very dense, gray ash (SW)	SW	10: 10
	0414	1.5	100-100-87			10: 52 BAFB 0413 duplicate
45	0415a	0.3	50/4*	SILTY SAND Tan, dry, very dense, well graded, lith- ified chunks (SM)	SM	
50	0415	1.5	100-66-100	WELL GRADED SAND Dark gray, dry, very dense, lithi- fied chunks, weakly cemented (SW)	SW	12: 40
55				END BORING AT 49.0 FEET		
60						

SITE 5

SR-71 SHELTERS DRAINAGE AREA

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-158	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SR-71 SHEL TER DRAINAGE AREA
 ELEVATION 113.59 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/9/89 FINISH 1/9/89 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0380	1.0	6-12-21	SILTY SAND Orangish brown, moist, medium dense, well graded (SM)	SM	12: 10 Begin drill Hnu = 1.2ppm
5	0381a		9-19-24	CLAYEY GRAVEL WITH SAND Reddish orange, moist, moderate plasticity (GC)	GC	
	0381b	0.4	6-11-16	WELL GRADED GRAVEL WITH SILTY CLAY Orange brown, moist, medium dense, moderate plasticity (GW)	GW	12: 30
10	0381	1.5	9-17-19	SILTY CLAY WITH SAND AND GRAVEL Orange brown, moist, firm, moderate plasticity, gravel is decomposed ash or siltstone (CL-ML)	CL ML	12: 50
15	0382a	0.5	12-17-50/3"	LEAN CLAY WITH SAND AND GRAVEL Light brown, firm, high plasticity (CL)	CL	13: 05 Driller notes: Gravel at 16 ft
20						13: 45
25	0382	1.5	24-65-88	WELL GRADED SAND Fine to medium grained, some gravel (SW)	SW	Driller notes: Cobbles at 24.8 ft
30	0383a	1.0	13-15-15	WELL GRADED SAND Medium density (SW)	SW	14: 15

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-1SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
 ELEVATION 113.59 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/9/89 FINISH 1/9/89 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0383	1.5	14-17-36	SILTY SAND Medium density, medium to fine grained (SM)		14: 20
35	0384a	1.0	17-33-33	SILTY SAND Light brown, medium density, some weathered granite (SM)	SM	14: 45
40	0384	1.5	18-24-31	SILTY SAND Light brown (SM)		Cobbles stop drill at 39 ft 15: 30
	0385	1.5	45-100-100/1*	POORLY GRADED SAND Fine grained, grading to weathered rock, large biotite flakes (SP)	SP	15: 40 BAFB 0384 duplicate
45	0386a	1.5	17-29-37	CLAYEY SAND Grayish orange, medium dense, moist (SC)	SC	16: 10
50	0386	1.5	16-34-47	WELL GRADED SAND Orange tint, some weathered rock (SW)	SW	16: 20
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-2SB	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
ELEVATION 112.11 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/10/89 FINISH 1/10/89 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0387	1.5	6-9-15	SANDY LEAN CLAY Brown, moist, firm, low plasticity (CL)	CL	10:25 Begin drill Sample
5	0388a	1.0	10-13-25	SANDY LEAN CLAY WITH GRAVEL Orange brown, moist, firm, angular to subrounded fine gravel (CL)		10:50
10	0388	1.5	7-12-11	SILTY CLAY WITH SAND Dark brown, moist, firm (CL-ML)	CL ML	11:00
15	0389a	0.6	19-33-51	SILT WITH SAND AND GRAVEL Orange brown, moist, firm (ML)	ML	11:15
20	0389	1.5	16-33-31	LEAN CLAY Gray, moist, firm, mottled (CL)	CL	11:30
25	0390a	1.5	23-26-44	LEAN CLAY WITH SAND AND GRAVEL Light brown, hard, gravel is weathered (CL)		11:45
30					GW	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-258	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

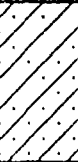

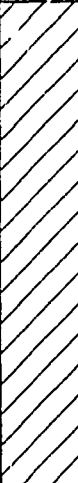
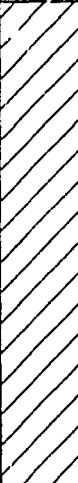
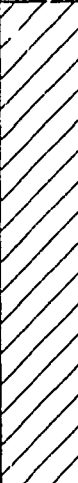
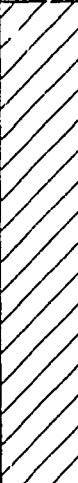

SOIL BORING LOG

PROJECT	BEALE AFB	LOCATION	SR-71 SHELTER DRAINAGE AREA
ELEVATION	112.11	DRILLING CONTRACTOR	DIAMOND CORE
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGER - MOBILE B80 VERTICAL		
WATER LEVEL AND DATE	WATER NOT ENCOUNTERED	START	1/10/89
		FINISH	1/10/89
		LOGGER	S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0390	1.5	31-77-23-80	WELL GRADED GRAVEL WITH SAND Light brown, dense, gravel varies from weathered to competent (GW)	GW	12: 15
35	0391a	0.5	50/4*	SILTY SAND Light brown, dry, very dense (SM)	SM	12: 35 Lunch
40	0391	1.5	23-60-65	WELL GRADED SAND Medium dense (SW)	SW	14: 05
				SILT Light brown, hard (ML)	ML	
45	0392a	1.1	12-12-12	WELL GRADED SAND Orange brown, medium dense (SW)	SW	15: 15
50	0392		7-38-23	WELL GRADED SAND WITH GRAVEL Medium dense (SW)		15: 30
				POORLY GRADED SAND Medium dense (SP)	SP	15: 40 End drill
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-3SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
 ELEVATION 110.74 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/11/89 FINISH 1/11/89 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0393	1.5	9-6-12	CLAYEY SAND Orange brown, moist, medium dense (SC)	 SC	10:40 Begin drill Sample
5	0394a	1.0	7-11-11	SILT WITH SAND Brown, moist, well graded sand (ML)	 ML	11:00
10	0394	1.5	3-3-13	LEAN CLAY Reddish brown, moist, black flakes (CL)	 CL	11:15
15	0395a	1.3	17-27-25	LEAN CLAY WITH SAND Yellowish brown, hard, crumbly (CL)	 CL	11:50
20	0395	1.5	9-10-50	LEAN CLAY WITH SAND Yellowish gray, moist, hard, mottled (CL)	 CL	12:00
25	0396a		15-23-30	LEAN CLAY Light brown, hard, crumbly, mottled (CL)	 CL	13:00
30					 GW	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-3SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
 ELEVATION 110.74 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/11/89 FINISH 1/11/89 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0396	1.5	24-100-32	WELL GRADED GRAVEL Dry, very dense, subrounded, some silt (GW)	GW	13:20
	0397	1.5	50-21-55			13:45 BAFB 0396 duplicate
35	0398a	1.5	10-28-31	SILTY SAND Brownish yellow, medium to fine sand (SM)	SM	
40	0398	1.5	18-32-43	SILT WITH SAND Orange brown, dry, well graded sand (ML)	ML	14:20 14:30 Lost sample in hole 14:40 Retrieved sampler
45	0399a		9-18-25	CLAYEY SAND Orange and brown, moist, medium dense, color changing to gray with depth (SC)	SC	15:00
50	0399	1.5	8-27-32	SILT WITH SAND Orange brown, dry, firm, well graded sand (ML)	ML	15:15
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.R1.04	BORING NUMBER 5-C-4SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
 ELEVATION 115.40 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/12/89 FINISH 1/12/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0400	1.5	4-6-5	CLAYEY SAND Medium brown, wet, medium dense (SC)	SC	10:35 Begin drill Sample
5	0401a	1.1	9-12-11	SANDY LEAN CLAY Medium brown, moist, stiff, well graded sand (CL)		
10	0401	1.5	12-19-18	SANDY LEAN CLAY Dark gray, moist, stiff, well graded sand, low plasticity (CL)	CL	11:10 Driller notes: Gravel at 12 ft
15	0402a	0.3	62/6*	SANDY LEAN CLAY Light brown, dry, hard, well graded sand, low plasticity (CL)		Out of gravel at 17 ft Driller notes: Gravel at 17.5 ft Out of gravel at 19 ft
20	0402	1.4	17-43-73	SANDY LEAN CLAY Light brown to tan, very hard, low plasticity, crumbly (CL)		11:40 Driller notes: Gravelly at 23 ft
25	0403a	0.6	45/6*	SILTY SAND Tan to brown, dry, very dense, some subrounded fine gravel, crumbly (SM)	SM	
30					ML	

D-71

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-4SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SR-71 SHELTER DRAINAGE AREA
 ELEVATION 115.40 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/12/89 FINISH 1/12/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0403	1.5	19-44-111	SANDY SILT Light brown, dry, very hard, well graded sand, crumbly (ML)	ML	13: 15
35	0403a	1.5	26-27-26	WELL GRADED SAND Light brown to dark reddish brown, dry, very dense (SW)		
40	0403	1.4	25-55-50	WELL GRADED SAND WITH GRAVEL Dark reddish brown to gray, dry, very dense, subrounded fine gravel (SW)	SW	13: 45
45	0404a	1.5	11-14-22	WELL GRADED SAND Very light tan, dry, dense (SW)		
50	0401	2.0	30-100-21-96	WELL GRADED SAND Dark gray, dry, very dense, weakly cemented (SW)		14: 10 14: 30 End drill Hnu = BG Hnu = BG Hnu = BG
				END BORING AT 52.0 FEET		
55						
60						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
5-C-16W

SHEET 1 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

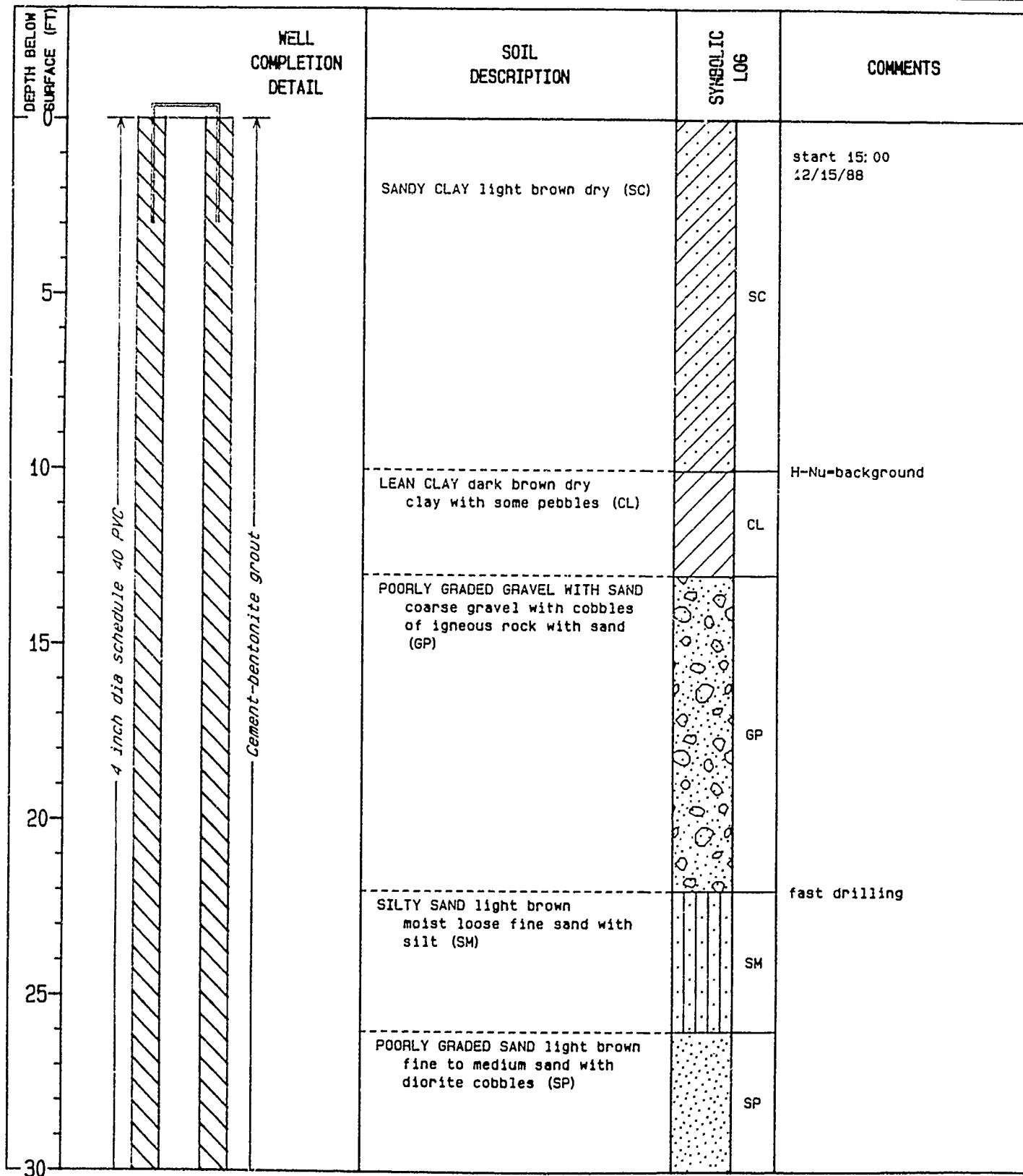
LOCATION W. OF SR71 SHELTERS

ELEVATION 110.21 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 3.30 FT NGVD 3/27/89 START 12/15/88 FINISH 12/16/89 LOGGER P. LAWSON



PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
5-C-16W

SHEET 2 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION W. OF SR71 SHELTERS

ELEVATION 110.21 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000




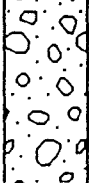
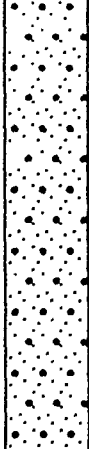
WATER LEVEL AND DATE 3.30 FT NGVD 3/27/89 START 12/15/88 FINISH 12/16/89 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	POORLY GRADED SAND (SP)	SP	fast drilling no coherent clasts returning
		WELL GRADED SAND WITH GRAVEL fine to coarse sand and rounded gravels (SW-GW)	SW GW	clasts 3" x 1" returning
35		WELL GRADED SAND gray brown medium to coarse moderately indurated sands andesite clasts common (SW)	SW	
40		LEAN CLAY pinkish purple loose slightly moist clay with black organic material may be altered volcanic ash (CL)	CL	
45		WELL GRADED SAND reddish brown moist loose fine to coarse subrounded arkosic sand with lithic clasts poorly indurated (SW)	SW	
50				
55		SILT pinkish brown moist moderately indurated siltstone (ML)	ML	moist clay possible perched water
		LEAN CLAY brown moist moderately indurated silty clay (CL)	CL	
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-1GW	SHEET 3 OF 5
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT <u>BEALE AFB</u>	LOCATION <u>W. OF SR71 SHELTERS</u>
ELEVATION <u>110.21 FT NGVD</u>	DRILLING CONTRACTOR <u>LAYNE ENVIRONMENTAL-STEVE JOHNSON</u>
DRILLING METHOD AND EQUIPMENT <u>DUAL TUBE PERCUSSION AP1000</u>	
WATER LEVEL AND DATE <u>3.30 FT NGVD 3/27/89</u> START <u>12/15/88</u> FINISH <u>12/16/89</u> LOGGER <u>P. LAWSON</u>	

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
60	<div style="display: flex; justify-content: space-around;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4 inch dia schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	LEAN CLAY as above (CL)	 CL	
		SANDSTONE fine to coarse well graded well indurated with volcanic clasts (SST)	 SST	
65		SILTSTONE very well indurated siltstone (ML)	 ML	
70		WELL GRADED GRAVEL fine to coarse rounded gravel with some cobbles (GW)	 GW	
75		WELL GRADED SAND reddish brown slightly moist loose fine to coarse sand with lithic fragments (SW)	 SW	H-Nu-background
80				
85		well graded sand as above		
90				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-1GW	SHEET 4 OF 5
----------------------------------	--------------------------	--------------

SOIL BORING LOG

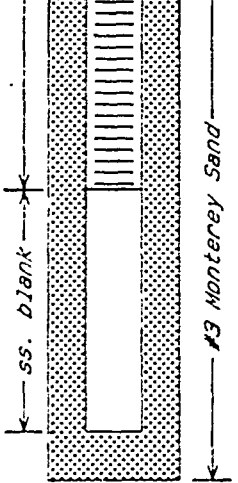
PROJECT BEALE AFB LOCATION W. OF SR71 SHELTERS
 ELEVATION 110.21 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.30 FT NGVD 3/27/89 START 12/15/88 FINISH 12/16/89 LOGGER P. LAWSON

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95	<p>4 inch dia schedule 40 PVC</p> <p>0.020" slot ss screen</p> <p>bentonite</p> <p>#30 Silica Sand</p> <p>#3 Monterey Sand</p> <p>WATER LEVEL</p>	WELL GRADED SAND reddish brown slightly moist loose fine to coarse sand with lithic fragments and some fine gravel (SW)	SW	H-Nu=background
100		WELL GRADED SAND WITH GRAVEL fine to coarse (GW-SW)	GW SW	
105		CLAYSTONE well indurated silty claystone (CL)	CL	moist sand
110		WELL GRADED SAND WITH SILT brown moist loose medium to coarse sand and fine rounded gravel with silt	SW SW	
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 5-C-16W	SHEET 5 OF 5
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION W. OF SR71 SHELTERS
ELEVATION 110.21 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 3.30 FT NGVD 3/27/89 START 12/15/88 FINISH 12/16/89 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		LEAN CLAY moist well indurated silty clay (CL)	CL	first water produced.
125		WELL GRADED SAND brown wet loose fine to coarse sand (SW)	SW	
130		BOTTOM OF BORING AT 130 FEET		
135				
140				
145				
150				

SITE 6

LANDFILL NO. 2

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-1SB	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 2
ELEVATION 115.32 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/1/88 FINISH 12/1/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				SANDY SILTY CLAY Brown (CL-ML)	CL ML	13:05 Begin drill Hnu = BG Color change
5	0087a	1.0	18-39-42	SANDY SILT Tan to light brown, dry, hard, some dark flakes (ML)	ML	
10	0087	1.1	16-47-50/3	SILTY SAND Tan to light brown, dry, very dense, some staining (SM)	SM	13:30
15	0088a	1.5	16-28-43	WELL GRADED SAND Tan to light brown, dry, very dense, some staining (SW)	SW	13:50 - 14:00 Fix Kelley unit on rig
20	0088	1.5	15-23-27	SANDY SILT Medium brown, dry, hard, gray stains, fine sand (ML)	ML	14:15
25	0089a	1.5	8-14-17	SANDY SILT Medium brown, dry, hard, gray staining (ML)	ML	
30					SM	

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
6-C-1SB

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 2

ELEVATION 115.32

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/1/88 FINISH 12/1/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0089b	1.5	10-29-36	SILTY SAND Medium brown, dry, very dense, gray stains, dark flakes (SM)	SM	
35	0089c	1.1	7-12-15	SANDY SILT Medium brown, dry (ML)	ML	
40	0089	1.3	30-49-70	WELL GRADED SAND WITH SILT AND GRAVEL Brown, dry, very dense, weakly cemented (SW)	SW	Driller notes: Gravels at 39.5 ft 15:30 sample time
45	0089d	1.5	9-10-19	WELL GRADED SAND Light brown to tan, moist, medium dense (SW)		Driller notes: Out of gravel at 43.5 ft
50	0089e		5-8-17	SILTY SAND Brown, wet, medium dense (SM)	SM	Water on sampler at 49.0 ft
				END BORING AT 51.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-2SB	SHEET 1 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 2
ELEVATION 122.13 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER, MOBILE R53 ANGLE 29 DEG SOUTH 10 DEG EAST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/12/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SANDY LEAN CLAY Brown, moist, well graded sand (CL)	CL	
5	0177A	0.5	29	SILTY SAND WITH GRAVEL Brown, dry, well graded sand, fine subrounded gravel (SM)	SM	Driller notes: Drilling in gravel.
10	0177	1.3	97-100/4.5"-100/5"	CLAYEY SAND WITH GRAVEL Brown, moist, well graded, weakly cemented (SC)	SC	09:30 Drive 6": pull: auger 6": drive 4-1/2": pull: auger: drive 5"
15	0178A	0.5	30	SANDY SILTY CLAY Brown, moist, well graded, black coarse sand (CL-ML)	CL ML	
20	0178	1.4	20-63-47	LEAN CLAY Brown, moist, gray coloring in soil (CL)		10:00 Drive 12": pull: auger 12": drive 6" 10:00 Hnu = BG
25	0179A	0.5	20	LEAN CLAY Brown, moist, gray coloring or mineralization in soil (CL)	CL	
30	0179	1.5	34-41-71	LEAN CLAY WITH SAND Brown and yellowish brown mottled, moist, coarse sand (CL)		10:40

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-2SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT SEALE AFB LOCATION LANDFILL 2
ELEVATION 122.13 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER, MOBILE 853 ANGLE 29 DEG SOUTH 10 DEG EAST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/12/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					CL	
35	0180a	0.5	31	CLAYEY SAND WITH GRAVEL Brown, moist, well graded sand, fine subrounded gravel (SC)	SC	
40	0180	1.3	20-52-109	CLAYEY SAND WITH GRAVEL Brown, moist, well graded, fine subrounded gravel (SC)	SC	11:05
45	0181a	0.5	32	SILTY SAND WITH GRAVEL Brown, moist, well graded sand, fine subrounded gravel (SM)	SM	Driller notes: Hard drilling at 44 ft. Shift gear on rotation drive. 11:45 Hnu = BG
50	0181	1.5	36-76-60	SILTY SAND WITH GRAVEL Brown, moist, well graded sand, fine subrounded gravel (SM)	SM	11:55 Drive 12": pull; auger 12": drive 6"
55	0182a	0.5	28	LEAN CLAY Tan, moist, blocky (CL)	CL	
				LEAN CLAY WITH GRAVEL Brown, moist, well rounded fine gravel and weathered rock (CL)	CL	
	0182	1.3	36-42-58	LEAN CLAY WITH SAND Brown, moist, fine to medium sand (CL)	CL	12:55
60				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC 24359.RI.04	BORING NUMBER 6-C-3SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT SEALE AFB LOCATION LANDFILL 2
 ELEVATION 113.83 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER, MOBILE B-53 ANGLE 29 DEG NORTH 29 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/8/88 FINISH 12/8/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				LEAN CLAY WITH SAND Brown, moist, mottled (CL)	CL	11:40 Begin Hnu = BG
5	0164a	0.5	34	SANDY SILT WITH GRAVEL Orange brown, drv, well graded (ML)	ML	
10	0164	1.3	31-36-53	GRAVELLY LEAN CLAY WITH SAND Brown, moist, subangular (CL)	CL	
15	0165a	0.5	20	SILT Brown, moist, (ML)	ML	
20	0165	1.5	34-63-49	d=17.5 SILTY SAND WITH GRAVEL Tan, moist, well graded, fine gravel (SM)	SM	12:40 Drove 12"; pull; auger 12"; drive 6"
25	0166a	0.5	21-24-33	SILTY SAND Tan, moist, fine grained (SM)	SM	13:00
30	0166		16-18-39	SILTY SAND Tan, moist, well graded (SM)		13:13

PROJECT NUMBER
SAC 24359.RI.04

BORING NUMBER
6-C-3SB

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 2

ELEVATION 113.83

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER, MOBILE B-53 ANGLE 29 DEG NORTH 29 DEG WEST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/8/88 FINISH 12/8/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFR NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0167a	0.5	3	SILTY SAND Tan, moist, well graded, lens of fine silty sand at 32.6 feet (SM)	SM	
35				GRAVEL AND COBBLES Well rounded (GW)	GW	Driller notes: cobbles and gravel between 35 and 37 ft
	0167	1.5	9-36-80	SILTY SAND Tan, moist, poorly graded fine (SM)	SM	13: 45
40						
	0168a	0.0	34	NO RECOVERY		14: 08 No recovery drill 2 ft and sample again.
45	0168b	0.5	35	LEAN CLAY Brown, moist (CL)		
				LEAN CLAY WITH FINE SAND Brown, moist (CL)	CL	14: 30 Drove 6"; pull; auger 6"; drive 12"
50	0168	1.5	100-26-54			
				NO RECOVERY		Drive 12"; pull; auger 12"; drive 6"; 2" recovery, lean clay in tip, cobble may have blocked tip
55	0169a	0.0	54-100-45			15: 20 Redrive 0169
	0169	1.4	24-50-88	LEAN CLAY WITH SAND Brown, moist, fine to medium sand (CL)		
				SILTY SAND Brown, moist, well graded (SM)	SM	Drive 12"; pull; auger 12"; drive 6"
60	0170	1.4	44-71-55			15: 45 End drilling
				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC 24359.RI.04	BORING NUMBER 6-C-4SB	SHEET 1 OF 2
SOIL BORING LOG		

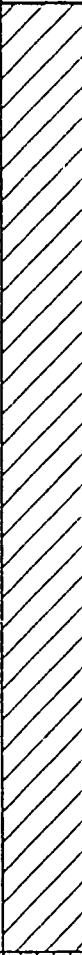


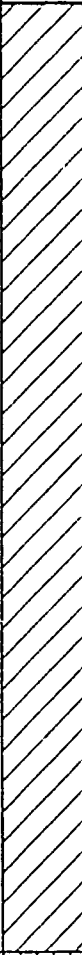
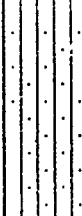


PROJECT BEALE AFB LOCATION LANDFILL 2
 ELEVATION 116.01 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER-MOBILE B-53 ANGLE 29 DEG NORTH 70 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/13/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	<input type="checkbox"/> 0228a	0.5	14	LEAN CLAY WITH SAND Brown, moist, mottled, oxidation stains, fine to medium sand (CL)	CL	
5	<input checked="" type="checkbox"/> 0228	1.5	29-59-39	LEAN CLAY Tan, moist, dark brown lumps of lean clay in soil (CL)		15:57 Drive 12"; pull; auger 12"; drive 6"
10	<input type="checkbox"/> 0229a	0.5	37	SILT Brown, moist, crumbly, black coloring in soil (ML)	ML	
15	<input checked="" type="checkbox"/> 0229	1.5	36-69-48	SILTY CLAY Tan, moist (CL-ML)	CL ML	16:25
20	<input type="checkbox"/> 0230a	0.5	34	SILTY CLAY Reddish brown, moist (CL-ML)		17:00 End drill 12/13/88 07:10 Begin drill
25	<input checked="" type="checkbox"/> 0230		44-91-41	LEAN CLAY Brown, moist (CL)	CL	07:25 Drive 12"; pull; auger 12"; drive 6"
30						

D-84

PROJECT NUMBER SAC 24359.RI.04	BORING NUMBER 6-C-4SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 2
 ELEVATION 118.01 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER-MOBILE B-53 ANGLE 29 DEG NORTH 70 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/12/88 FINISH 12/13/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	<input type="checkbox"/> 0231a	0.5	31	LEAN CLAY Brown, moist, mottled (CL)		07: 59 Hnu cuttings = BG
35	 0231	1.4	21-46-63	SANDY LEAN CLAY Tan, moist, well graded sand (CL)		08: 10
40	<input type="checkbox"/> 0232a	0.5	37	SANDY LEAN CLAY Yellowish brown, moist, well graded (CL)		
45	 0232	1.5	27-105/5*	SANDY LEAN CLAY WITH GRAVEL Brown, moist, well graded sand, fine subrounded to subangular gravel (CL)		08: 40 Drive 11": pull; auger 11": drive 7"
50	<input type="checkbox"/> 0233a	0.5	41	SILTY SAND Brown, moist, fine (SM)		
55	 0232		46-46-130	LEAN CLAY Tan, moist, with gravel in upper 6 inches (CL)		09: 20
60				END BORING AT 58.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-558	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 2
 ELEVATION 109.84 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - NORTH 16 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/9/88 FINISH 12/9/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SILTY CLAY WITH SAND Reddish brown, moist, well graded (CL-ML)		09:00 Rig on site 09:10 Begin drill
5	0171a	0.5	41	SILTY CLAY WITH FINE GRAVEL Brown, moist (CL-ML)		
10	0171	1.4	33-104-50	SILTY CLAY WITH SAND Tan, moist, well graded (CL-ML)	CL ML	09:40 Drive 12"; pull; auger 12"; drive 6"
15	0172a	0.5	35	LEAN CLAY Brown, moist, black coloring in soil (CL)		
20	0172	1.4	30-49-96	LEAN CLAY Brown, moist, (CL)		10:05
25	0173a	0.5	25	LEAN CLAY Brown, moist, trace black coloring (CL)	CL	
30	0173	1.4	53-80-47	LEAN CLAY Brown, moist, trace black coloring (CL)		10:35 Drive 12"; pull; auger 12"; drive 6"

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-5SB	SHEET 2 OF 2
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 2
ELEVATION 109.34 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - NORTH 16 DEG WEST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/9/88 FINISH 12/9/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					CL	
	0174a	0.5	40	CLAYEY SAND WITH GRAVEL Brown, moist, fine sub- rounded gravel and weathered rock fragments (SC)	SC	
35						
	0174	1.5	12-42-73	LEAN CLAY Brown, moist (CL)		11:11
40						
	0175a	0.5	42	LEAN CLAY WITH SAND Brown, moist, fine to medium, black coloring 42.5 ft to 42.7 ft, sandier at bottom of sample (CL)	CL	
45						
	0175	1.3	24-80-42	GRAVELLY LEAN CLAY WITH SAND Brown, moist, fine gravel, well graded sand, weathered rock fragments (CL)		11:50 Drive 12"; pull; drill 12"; drive 6"
50						
	0176a	0.5	25	LEAN CLAY Tan, moist, blocky, caliche horizons (CL)		
55						
	0176	1.4	35-47-98	SILT Tan and brown, moist, black coloring (ML)	ML	12:50
				END BORING AT 59.0 FEET		13:10
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-1GW	SHEET 1 OF 3
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 2, A ST & GAVIN MANDRY
 ELEVATION 108.49' NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 56.1 FT NGVD 3/27/89 START 12-5-88 FINISH 12-6-88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<p>4" dia. schedule 40 PVC well casing</p> <p>Cement-bentonite grout</p>	SANDY SILT Reddish brown (ML)		H-Nu-background Smooth, fast drilling
5		SANDY SILT WITH GRAVEL Reddish brown, moist (ML)	ML	
10		SANDY LEAN CLAY Dark Brown, with some fine sand and silt. Clay content increases with depth (CL/ML)	CL/ML	H-Nu=0.0
15		GRAVELLY LEAN CLAY Brown wet (CL)	CL	
20		SILTY SAND Brown, clumpy (SM)	SM	
25		GRAVELLY LEAN CLAY dense gravel silt and clay in clumps (CL)	CL	
30				

D-88

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-1GW	SHEET 2 OF 3
----------------------------------	--------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 2, A ST & GAVIN MANDR.
 ELEVATION 108.49' NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 56.1 FT NGVD 3/27/89 START 12-5-88 FINISH 12-6-88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<p>4" dia. schedule 40 PVC well casing</p> <p>Cement-bentonite grout</p> <p>30 silica sand</p> <p>bentonite</p> <p>WATER LEVEL</p>	GRAVELLY LEAN CLAY (CL)	CL	
35		POORLY GRADED SAND WITH SILT reddish, little gravel (SP-SM)	SP SM	
40		SANDY SILT red, dry, (ML)	ML	
45		WELL GRADED SAND moist, fine to coarse with some gravel and silt (SW)	SW	
50		LEAN CLAY WITH SAND tan clumpy (CL)	CL	
55		WELL GRADED SAND WITH SILT AND GRAVEL tan, moist, (SW-SM)	SW SM	H-Nu=0.0
60		SANDSTONE tanish gray fine grain with dense interbeds of silt, gravel and clay	SP	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 6-C-1GW	SHEET 3 OF 3
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 2, A ST & GAVIN MANDRY
 ELEVATION 108.49' NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 56.1 FT NGVD 3/27/89 START 12-5-88 FINISH 12-6-88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0				
65		SANDSTONE Gray fine grained with dense interbeds of silt, gravel and clay (SP)		
		Platy gray sandstone		
70		Moist, dark gray to black fine grained sandstone		
75		Very wet, porous, poorly cemented sandstone	SP	first water production 75-77'
		Gray platy siltstone and sandstone		
80				
85		Brown to tan, fine grained sandstone		
90		END OF BORING AT 90 FEET		

SITE 9

ENTOMOLOGY BUILDING 2560

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 9-C-1SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT SEALE AFB LOCATION ENTOMOLOGY BUILDING 2560
 ELEVATION 129.18 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/9/88 FINISH 12/9/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0204	1.5	13-17-16	SANDY SILT Reddish brown, moist, fine sand (ML)	ML	10:45 Begin coring Sample Hnu = BG LEL = 0.0%
5	0205	1.5	20-29-32	SANDY LEAN CLAY Reddish brown, moist, very hard, white mineralization, black flakes (CL)	CL	10:55 Hnu = BG
10	0206	1.5	12-28-45	SILTY CLAY Tan to reddish brown, dry, very hard, flakey (CL-ML)	CL ML	11:05
15	0207	1.4	8-10-17	CLAYEY SAND Tan to reddish brown, moist, medium dense, black flakes (SC)	SC	11:20 Hnu = BG
20	0211	1.5	10-10-29	CLAYEY SAND Tan, moist, stiff (SC)		11:35
				END BORING AT 51.5 FEET		
25						
30						

SITE 11

AIRCRAFT GROUND EQUIPMENT MAINTENANCE AREA

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 11-C-1SB	SHEET 1 OF 1
----------------------------------	---------------------------	--------------

SOIL BORING LOG



PROJECT BEALE AFB	LOCATION A G E. MAINTENANCE AREA
ELEVATION 124.61	DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL	
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/9/88 FINISH 12/9/88 LOGGER N. JONES	

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0212	1.0	12-18-22	SANDY GRAVELLY SILT Medium brown, moist, dense, mottled, angular fine gravel (ML)	ML	13:35 Begin drill 13:37 Sample
5	0213	1.0	27-50/3'-22-54	SANDY LEAN CLAY Dry, very hard, crumbly, veins of reddish brown coloring (CL)	CL	Driller notes: Out of gravel at 4 ft 13:56 Rig down 14:20
10				END BORING AT 10.1 FEET		Driller notes: Cemented gravel at 7.8 ft Auger refusal at 10.1 ft
15						
20						
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 11-C-2SB	SHEET 1 OF 1
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION A.G.E. MAINTENANCE AREA
 ELEVATION 124.51 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/16/88 FINISH 12/16/88 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0280		10-12-16	SILTY CLAY WITH SAND Reddish brown, high plasticity (CL-ML)		
5	0281	1.3	38-100	SANDY SILT Light reddish brown, with gravel and broken rock (ML)		Driller notes: Hit gravel or rock at 4.6 ft 12:05 Sample
10				END BORING AT 7.8 FEET		Auger refusal at 7.8 ft
15						
20						
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 11-C-3SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION A G E MAINTENANCE AREA
 ELEVATION 127.64 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE R80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/13/89 FINISH 1/13/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0406	1.5	14-19-10	SANDY LEAN CLAY WITH GRAVEL Medium brown, wet, hard, subrounded gravel (CL)	CL	09:00 BAFB 0406 duplicate
	0416	0.8	79-80/1 3/4"	LEAN CLAY Light to medium brown, dry, very hard, some fine sand (CL)		
5	0417	1.5	35-70-100/5"	LEAN CLAY Medium reddish brown, moist, very hard, black flakes (CL)		09:05
10				GRAVEL AND COBBLES (GP)	GP	Driller notes: Gravel and cobbles at 8.9 ft Unable to drive sampler due to gravels
15				END BORING AT 12.3 FEET		10:00 End drill
20						
25						
30						

SITE 13

LANDFILL NO. 1

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-1SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 89.11 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/6/88 FINISH 12/7/88 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
5	0106a	0.5	8-11-13	SANDY SILT Reddish brown, moist, fine sand (ML)	ML	15: 22 Begin drill 15: 30 Drive 0106a 15: 35 Hnu = BG
10	0106	1.5	9-8-9	POORLY GRADED SAND Medium grained (SP)	SP	
				SANDY LEAN CLAY Reddish brown, satuated, sticky (CL)	CL	
15	0107a	1.5	4-3-3	POORLY GRADED SAND Medium grained (SP)	SP	15: 45
20	0107	1.5	9-14-23	SILTY CLAY Reddish brown, black mottling (CL-ML)	CL ML	Hnu = BG
25	0108a		6-6-6	SILTY CLAY Light brown, some mottling, brittle (CL-ML)	CL ML	15: 55
30					CL	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-198	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 89.11 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/6/88 FINISH 12/7/88 LOGGER S. MONTEITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0108		7-7-23	LEAN CLAY Light brown, mottled (CL)	CL	16:07 Hnu - BG
35	0111a	1.5	6-3-37	LEAN CLAY Light brown, mottled (CL)		16:25 Hnu - BG
40	0111	1.5	15-31-37	SILT Reddish brown, flakey, crumbly (ML)	ML	08:15 Hnu - BG LEL = 0.0%
45	0112a		13-20-27	SILT Reddish brown, mottled (ML)		08:30 Hnu - BG LEL = 0.0%
50	0112	1.0	14-65	SILT Reddish brown, moist, some black specks (ML)		08:45 Hnu - BG LEL = 0.0%
	0113	1.5	26-36-50	END BORING AT 51.5 FEET		08:55 BAFB 0112 duplicate
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-2SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 88.52 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 70 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/15/88 FINISH 12/16/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						
5	0252a	0.4	17	SILTY CLAY Brown, moist, hard, organics (CL-ML)	CL ML	
10	0252	1.4	31-86-54	CLAYEY GRAVEL WITH SAND Brown, moist, dense, fine subrounded gravel, well graded sand (GC)	GC	14:00 Drive 12": pull; auger 12": drive 6"
15	0253	1.3	14-20-53	LEAN CLAY WITH SAND Tan, moist, firm, well graded, oxidation stains (CL)		14:20
20	0254	1.5	15-17-31	LEAN CLAY WITH SAND Tan, moist, firm, fine poorly graded sand (CL)		14:35
25	0255a	0.5	21	SANDY LEAN CLAY Brown, moist, hard, well graded sand, black coloring in clay matrix, 1 inch lens of black stained sand (CL)		Hnu = BG on sample
30	0255	1.4	16-23-43	LEAN CLAY WITH SAND Brown, moist, firm, poorly graded fine (CL)		15:00

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
13-C-258

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 1

ELEVATION 88.52

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 70 DEG WEST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/15/88 FINISH 12/16/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30						
35	<input type="checkbox"/> 0256a	0.5	31	LEAN CLAY Tan, moist, firm, black coloring in soil (CL)		
40	<input checked="" type="checkbox"/> 0256	1.2	12-25-48	SANDY LEAN CLAY Brown, moist, firm, fine to medium sand (CL)		15: 40
45	<input type="checkbox"/> 0257a	0.5	32	LEAN CLAY WITH SAND Brown, moist, firm, fine sand (CL)		
50	<input checked="" type="checkbox"/> 0257	1.5	22-44-54	LEAN CLAY WITH SAND Brown, moist, firm, fine sand (CL)		16: 05
55	<input type="checkbox"/> 0258a	0.5	31	LEAN CLAY Brown, moist, hard, black coloring (CL)		16: 17 End drilling 12/16/88 07: 15 Begin drill
60	<input checked="" type="checkbox"/> 0258	1.4	15-55-76	LEAN CLAY Brown, moist, hard, black coloring (CL)		08: 10
				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-3SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 92.25 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 45 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/88 FINISH 12/15/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY Reddish brown, moist (CL)		15:50 Begin drill Hnu = BG
5	0246a	0.5	13	LEAN CLAY WITH SAND Brown, moist, poorly graded fine sand (CL)	CL	
	0246	1.3	21-38-38	SANDY LEAN CLAY Brown, moist, well graded (CL)		16:00
10	0247a	0.5	38	CLAYEY SAND Brown, saturated, dense, well graded (SC)	SC	
15	0247	1.5	19-23-33	LEAN CLAY Brown, moist, gray and oxide mottled (CL)	CL	16:25
20	0248a	0.5	22	SILT Brown, moist (ML)	ML	16:45 End drill 12/15/88 07:35 Begin drill
25	0248	1.5	19-32-38	SILTY CLAY Brown, moist, firm, mottled (CL-ML)	CL ML	07:55
30						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
13-C-3SB

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 1

ELEVATION 92.25

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 45 DEG WEST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/14/88 FINISH 12/15/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					CL ML	
	0249a	0.5	33	LEAN CLAY Tan, moist, firm, oxidation stains (CL)		
35						
	0249	1.4	38-58-130	LEAN CLAY Tan, moist, firm, oxidation stains, 6 inch sand lens from 38.0 ft to 38.5 ft (CL)		08: 30
40						
	0250a	0.5	30	LEAN CLAY Tan, moist, hard, oxidation stains, black coloring in soil (CL)		
45					CL	
	0250	1.5	33-57-125	LEAN CLAY Brown, moist, hard, black coloring in soil (CL)		09: 10
50						
	0251a	0.5	35	LEAN CLAY Brown, moist, hard, black coloring (CL)		
55						
	0251		18-34-55	LEAN CLAY WITH SAND Brown, moist, fine to medium sand, black coloring in soil (CL)		09: 50
60				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4SB	SHEET 1 OF 2
SOIL BORING LOG		

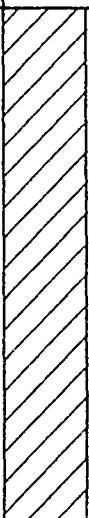
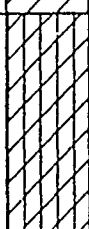
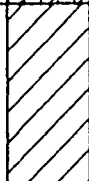
PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 91.12 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 85 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/4/89 FINISH 1/4/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY Brown, wet (CL)		08:00 Begin drill Hnu = BG
5	0303a	0.5	20	LEAN CLAY Brown, wet, soft, organics (CL)		Cuttings moist
10	0303	1.5	65-70-80	LEAN CLAY Tan, dry, hard, oxidation stains, crumbly (CL)		08:20 Hnu cuttings = BG Drive 6": pull; auger 6": drive 6": pull; auger 6": drive 6"
15	0304	1.5	28-29-49	CLAYEY SAND Brown, moist, dense, well graded (SC)		08:50 BAFB 0303 duplicate, not analyzed
20	0305	1.5	21-27-49	LEAN CLAY Reddish brown, moist, firm, black coloring (CL)		09:05
25	0306a	0.5	50	LEAN CLAY Brown, moist (CL)		
30	0306		33-50-90	LEAN CLAY Tan, moist, hard (CL)		09:35 Hnu cuttings = BG

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4SB	SHEET 2 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 91.12 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 85 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/4/89 FINISH 1/4/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	<input type="checkbox"/> 0307a	0.5	30	LEAN CLAY Tan, moist, firm (CL)		
35	<input checked="" type="checkbox"/> 0307	1.5	40-133-55	LEAN CLAY Tan, moist, hard, oxidation stains, grades sandler towards tip of sampler (CL)		10: 15
40	<input checked="" type="checkbox"/> 0308	1.5	19-28-46	LEAN CLAY Reddish brown, firm, moist (CL)		10: 45
45	<input checked="" type="checkbox"/> 0309	1.5	35-46-67	LEAN CLAY Brown, moist, firm, veins of white minerali- zation at tip (CL)		11: 05
50	<input type="checkbox"/> 0310a	0.5	33	SILTY CLAY Brown, moist, soft, mottled (CL-ML)		
55	<input checked="" type="checkbox"/> 0310	1.5	33-41-66	LEAN CLAY WITH SAND Brown, moist, firm, well graded (CL)		11: 50
60				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4SB-A	SHEET 1 OF 1
----------------------------------	-----------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB	LOCATION LANDFILL 1
ELEVATION 89.48	DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 VERTICAL	
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/3/89 FINISH 1/3/89 LOGGER D. M. SMITH	

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						12: 10 Begin drill
5	S1	1.0	3-11-29	LEAN CLAY WITH SAND Brown, moist, firm, well graded, grades dry and hard at 4.0 ft (CL)	CL	
	S2	1.2	12-18-25	SANDY LEAN CLAY Brown, dry, stiff, well graded, broken glass at 5.8 ft (CL)		
	S3	1.0	17-19-16			
	S4	1.3	8-19-28			
10	S5	1.3	11-20-32	TAR 0.1 ft thick, organics SILTY SAND Brown, moist, dense, poorly graded fine (SM)	TAR SM	Hnu = 150 ppm on sample at tar
	S6	1.8	9-18-32-30	LEAN CLAY Brown, moist, firm, black coloring in soil, native soil (CL)	CL	
15				END BORING AT 12.5 FEET		13: 15 End drill Hnu lead auger when pulled; Hnu = 86
20						
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4SB-B	SHEET 1 OF 1
----------------------------------	-----------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 89.62 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 853 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/3/89 FINISH 1/3/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	S1	1.9	5-15-29-50	LEAN CLAY WITH SAND Brown, moist, firm, well graded, sandier with depth, ash layer at 3.2 ft (CL)	CL	14:00 Begin drill Hnu = BG
5	S2	2.0	9-38-49-50	SILT Tan, moist, hard, oxidation stains, grades sandier with depth, fine sand (ML)	ML	
	S3	1.8	9-34-48-46	LEAN CLAY Brown, moist, hard, black coloring, oxidation stains, native soil (CL)	CL	
10				END BORING AT 9.0 FEET		14:40 End drill
15						
20						
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-5SB	SHEET 1 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 1
 ELEVATION 89.16 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG DUE NORTH
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/16/88 FINISH 12/16/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						11:00 Begin drill Hnu cuttings = BG
5	0259a	0.5	23	LEAN CLAY Brown, dry, firm, organics (CL)		
10	0259	1.5	45-101-58	LEAN CLAY WITH SAND Tan, dry, hard (CL)		11:20 Drive 12"; pull: auger 12"; drive 6"
15	0287a	0.5	21	LEAN CLAY WITH SAND Tan, moist, firm, oxidation stains, fine to medium sand (CL)	CL	
20	0287	1.5	12-13-21	LEAN CLAY WITH SAND Tan, moist, firm, oxidation stains, fine to medium sand (CL)		12:45
25	0288a	0.5	33	LEAN CLAY Brown, moist, hard (CL)		
30	0288	1.4	33-67-58	LEAN CLAY Brown, moist, hard (CL)		13:05 Drive 12"; pull: auger 12"; drive 6"

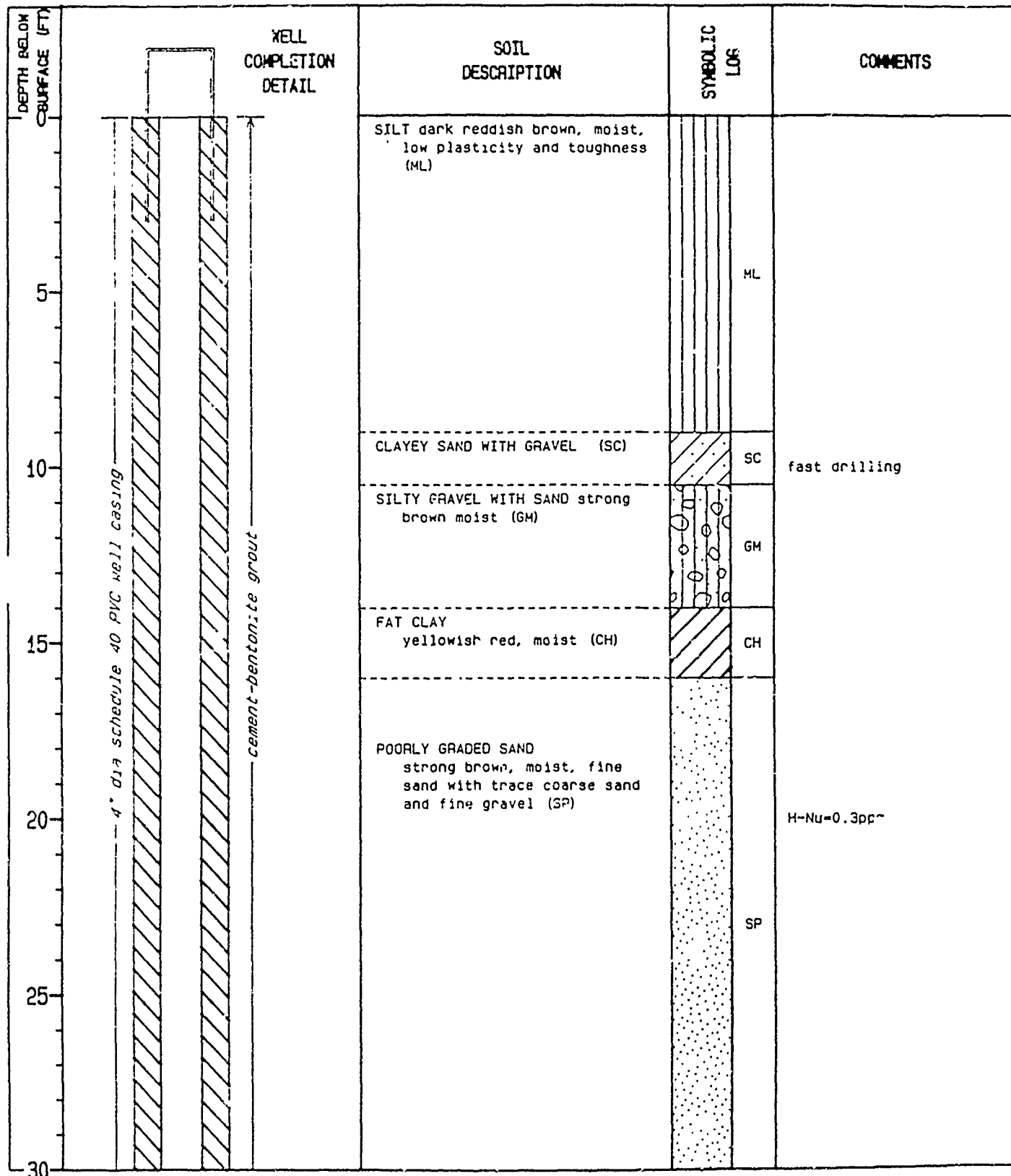
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-5S8	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT SEALE AFB LOCATION LANDFILL 1
 ELEVATION 92.45 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG DUE NORTH
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/16/88 FINISH 12/16/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30						
	<input type="checkbox"/> 0289a	0.5	31	LEAN CLAY Tan, moist, firm, oxidation stains (CL)		
35					CL	
	<input checked="" type="checkbox"/> 0289	1.5	20-33-62	LEAN CLAY Brown, moist (CL)		14:00 End drill 12/19/88 10:30 Begin drill
40						
	<input type="checkbox"/> 0290a	0.5	34	SILTY CLAY Brown, moist, firm, mottled (CL-ML)	CL ML	
45						
	<input checked="" type="checkbox"/> 0290	1.5	24-38-57	LEAN CLAY Tan, moist, firm, oxidation stains (CL)	CL	11:37
50						
	<input type="checkbox"/> 0291a	0.5	8	SILTY CLAY Brown, moist, soft, dry lumps in soil (CL-ML)	CL ML	
55						
	<input checked="" type="checkbox"/> 0291	1.5	15-27-83	LEAN CLAY Brown, moist, firm, black coloring in soil (CL)	CL	12:45
60				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-1GW	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1 NORTH SIDE BY PIPELINE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.78 FT NGVD 3/27/89 START 12/9/88 FINISH 12/9/88 LOGGER C. ELLIOTT



D-107

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 12-C-1GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1 NORTH SIDE BY PIPE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.78 FT NGVD 3/27/89 START 12/9/88 FINISH 12/9/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4" dia schedule 40 PVC well casing</div> <div>cement-bentonite grout</div>	POORLY GRADED SAND (SP)	SP	slower drilling
35		LEAN CLAY dark yellow-brown, moist, medium plasticity and toughness with thin layers of fat clay (CL)	CL	
40		SILT WITH SAND dark yellow-brown, moist (ML)	ML	H-Nu=0.3ppm
45		SILTY SAND dark yellow-brown (SM)	SM	
50		LEAN CLAY yellowish-brown, moist, medium plasticity and toughness (CL)	CL	
55		SILT yellowish-brown, dry, thin cemented lamina (ML)	ML	
		FAT CLAY yellowish-brown, dry, high plasticity and dry strength, laminations of black organic matter (CH)	CH	
60		SILT reddish brown dry some cemented layers (ML)	ML	H-Nu=0.3ppm

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-16W	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT: SEALS AFB LOCATION: LANDFILL 1 NORTH SIDE BY PIPELINE
 ELEVATION: 88.18 FT NGVD DRILLING CONTRACTOR: LAYNE ENVIRONMENTAL HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT: DUAL TUBE PERCUSSION AB1000
 WATER LEVEL AND DATE: 3.78 FT NGVD 3/27/89 START: 12/9/88 FINISH: 12/9/88 LOGGER: C. ELLIOTT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4" dia schedule 40 PVC well casing</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">cement-bentonite grout</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">#30 silica sand</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">bentonite</div> </div>	SILT reddish-yellow, dry, thin layers of moderate cementation (ML) dark yellowish-brown, moist trace fine sand	ML	
70		POORLY GRADED SAND WITH GRAVEL dark yellowish-brown, moist 20% gravel (SP)	SP	
75		WELL GRADED SAND WITH GRAVEL dark yellowish-brown, moist (SW)	SW	
80		SANDY LEAN CLAY yellowish-brown, moist 30% well graded sand (CL)	CL	H-Nu=0.2
85		CLAYEY SAND yellowish-brown, moist, with cemented layers 40% clay (SC)	SC	
90		LEAN CLAY yellowish-brown moist medium plasticity, toughness and dry strength (CL)	CL	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-16W	SHEET 4 OF 4
SOIL BORING LOG		

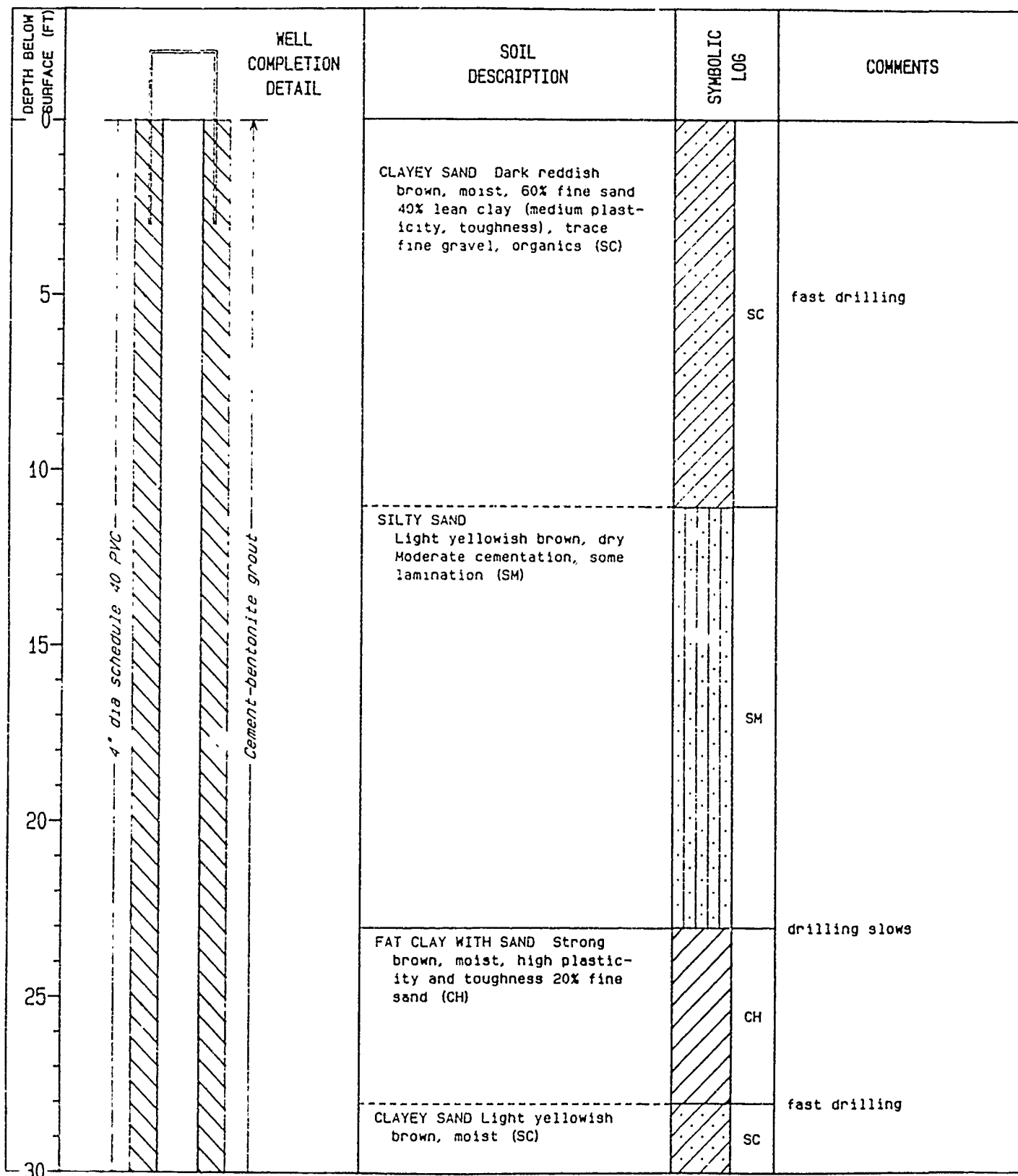
PROJECT BEALE AFB LOCATION LANDFILL 1 NORTH SIDE BY PIPELINE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.78 FT NGVD 3/27/89 START 12/9/88 FINISH 12/9/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN CLAY yellowish brown, moist, medium plasticity, toughness and dry strength (CL)	CL	
95		FAT CLAY yellowish brown, dry, high plasticity, toughness and dry strength (CH)	CH	H-Nu=0.3
100		yellowish brown with very pale brown mottling and laminations of dark organic organic matter, moist	CH	
105				
110		SILTY SAND dark yellow-brown very wet (makes water) 60% fine sand, 40% silt (SM)	SM	Producing water during drilling H-Nu=0.5ppm
		FAT CLAY dark yellowish brown moist, high plasticity, dry strength, toughness (CH)	CH	stop producing water
115		CLAYEY SAND WITH GRAVEL dark yellowish brown, moist 20% fine rounded gravel, 40% well graded sand, 40% fat clay (SC)	SC	
120		BOTTOM OF BORING AT 120 FEET		H-Nu=0.3ppm

D-110

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-26W	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO. 1: SW SIDE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.26 FT NGVD 3/27/89 START 12/7/88 FINISH 12/7/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-2GW	SHEET 2 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL NO. 1: SW SIDE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.26 FT NGVD 3/27/89 START 12/7/88 FINISH 12/7/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4" dia schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	POORLY GRADED SAND Dark yellow brown, moist, 5% silt (SP)	SP	
35		SILTY SAND Yellowish brown, moist (SM)	SM	
40		LEAN CLAY WITH SAND Yellowish brown, moist, med plasticity and toughness (CL)	CL	drilling slows
45		CLAYEY SAND Strong brown, moist, 60% fine sand, 40% lean clay (SC)	SC	
50		sand content increasing		
55		POORLY GRADED SAND WITH SILT	SP SM	H-Nu=1.0ppm
60				




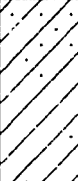

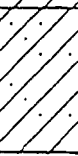
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-26W	SHEET 3 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO. 1: SW SIDE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.26 FT NGVD 3/27/89 START 12/7/88 FINISH 12/7/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<div>4" dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	POORLY GRADED SAND WITH SILT Strong brown, moist, (SP-SM)	SP SM	fast drilling
65		WELL GRADED SAND Dark grayish brown, moist, trace gravel (SW)	SW	
70		WELL GRADED SAND WITH GRAVEL gravel increases to 20 %	SW	
75				
80		CLAYEY SAND Dark yellowish brown some weak to moderate cementing and laminations, well graded sand (SC)	SC	H-Nu=1.2ppm
85	<div>WATER LEVEL</div>	coarse sand increasing		
		SILT Brownish yellow moist (ML)	ML	
90		CLAYEY SAND Brown moist (SC)	SC	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-26W	SHEET 4 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO. 1: SW SIDE
 ELEVATION 88.18 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.26 FT NGVD 3/27/89 START 12/7/88 FINISH 12/7/88 LOGGER C. ELLIOTT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		CLAYEY SAND Strong brown, moist, some layers of moderate cement 30% clay (SC) clay content increasing		drilling slows
95			SC	
100		FAT CLAY Yellowish brown, moist, high plasticity, toughness (CH)		H-Nu=0.4ppm producing water
105		WELL GRADED GRAVEL WITH SAND dark yellowish brown, wet, rounded to subrounded (GW)		
110		CLAYEY SAND Dark yellowish brown, wet, 60% fine sand 40% fat clay (SC)		water stops
115		LEAN CLAY Brownish yellow, moist, medium plasticity toughness (CL)		
		GRAVELLY LEAN CLAY WITH SAND	CL	
120		CLAYEY SAND Brownish yellow, moist, 70% fine sand (SC)		H-Nu=1.0ppm

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
13-C-26W

SHEET 5 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL NO. 1: SW SIDE

ELEVATION 88.18 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 0.26 FT NGVD 3/27/89 START 12/7/88 FINISH 12/7/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		CLAYEY SAND Brownish yellow moist with sand becoming coarser with depth (SC)	SC	
125				producing water
130		SILTY SAND Yellowish brown, wet, 80% fine sand, trace medium (SM) sand becoming well graded		
135		thin fat clay lenses	SM	
140		lense of cobbles		steady water production
145		POORLY GRADED AND WITH SILT Dark yellowish brown, wet, fine to medium sand (SP-SM)	SP SM	H-Nu=0.3ppm
150		BOTTOM OF BORING AT 150 FEET		

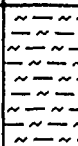



PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
13-C-36W

SHEET : 0F 4

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL NO 1: SW SIDE
ELEVATION 85.51 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 6.81 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
		SANDY ORGANIC SOIL WITH GRAVEL Dark brown, moist (OL-OH)	 OL OH	
5		SILT WITH SAND Brown, dry with layers of weak cementation (ML)	 ML	fast drilling
10		layers of hard cementation from 9-15 feet		drilling slows somewhat
15		POORLY GRADED SAND Dark yellowish brown, dry, layers with moderate cementation no structure (SP)	 SP	very fast drilling H-Nu=0.3ppm
20				
25				
30		FAT CLAY	 CH	

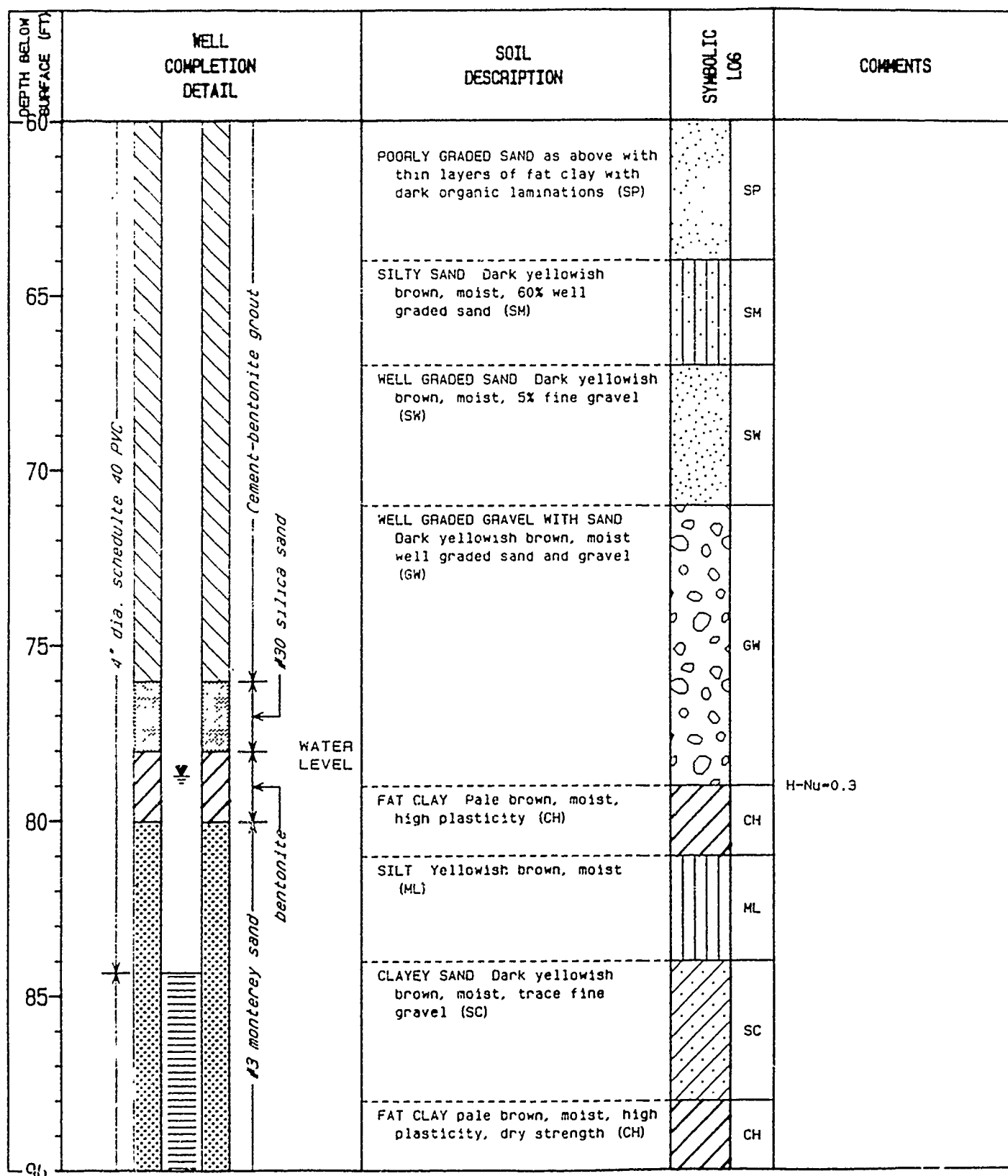
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-36W	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO 1: SW SIDE
 ELEVATION 85.51 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 6.81 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4" dia. schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	FAT CLAY Yellowish brown, moist high plasticity, toughness, dry strength, some cement (CH)	CH	Drilling slower but smooth
35		SILT Strong brown, dry, some cementation (ML)	ML	H-Nu=0.2
40		LEAN CLAY Yellowish brown, moist, low plasticity, medium toughness and dry strength (CL)	CL	drilling slows
45		layers of moderate to strong cementation 44-50 ft.	CL	
50		SILT WITH SAND Strong brown, moist, 20% fine sand (ML)	ML	
55		POORLY GRADED SAND Dark yellowish brown, moist, fine sand (SP)	SP	
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-36W	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO 1: SW SIDE
 ELEVATION 85.51 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 6.81 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-36W	SHEET 4 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL NO 1 SW SIDE
 ELEVATION 85.51 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 6.81 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95		FAT CLAY Very pale brown, moist, high plasticity, toughness, dry strength (CH)	CH	
		LEAN CLAY Dark yellowish brown moist, medium plasticity, toughness, dry strength (CL)	CL	
100		SILT WITH SAND Dark yellowish brown, moist, 20% fine sand (ML)	ML	start water production H-Nu=0.3ppm
		WELL GRADED GRAVEL WITH SAND Dark yellowish brown, wet (GW)	GW	
		CLAYEY SAND WITH GRAVEL (SC)	SC	water slows to a tricle
105		FAT CLAY Dark brown, moist, high plasticity, toughness (CH)	CH	water stops
110		BOTTOM OF BORING AT 110 FEET		H-Nu=0.3ppm
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4GW	SHEET 1 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 1 SOUTH SIDE
 ELEVATION 87.08 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 7.36 FT NGVD 3/27/89 START 12/6/88 FINISH 12/7/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<p>4" dia. schedule 40 pipe cement-bentonite grout</p>	SILTY SAND dark brown, moist with some clay (SM)	SM	start 13:10 H-Nu=0.3 =background
5		WELL GRADED GRAVEL WITH SILT AND SAND light brown, moist pea gravel (GW-GM)	GW GM	Rapid Drilling
10		SILTY SAND brown, moist to wet (perched water?) (SM)	SM	Perched water?
15		SANDY SILT light brown to reddish brown, moist (ML)	ML	13:45 H-Nu=0.3
20				
25				
30				

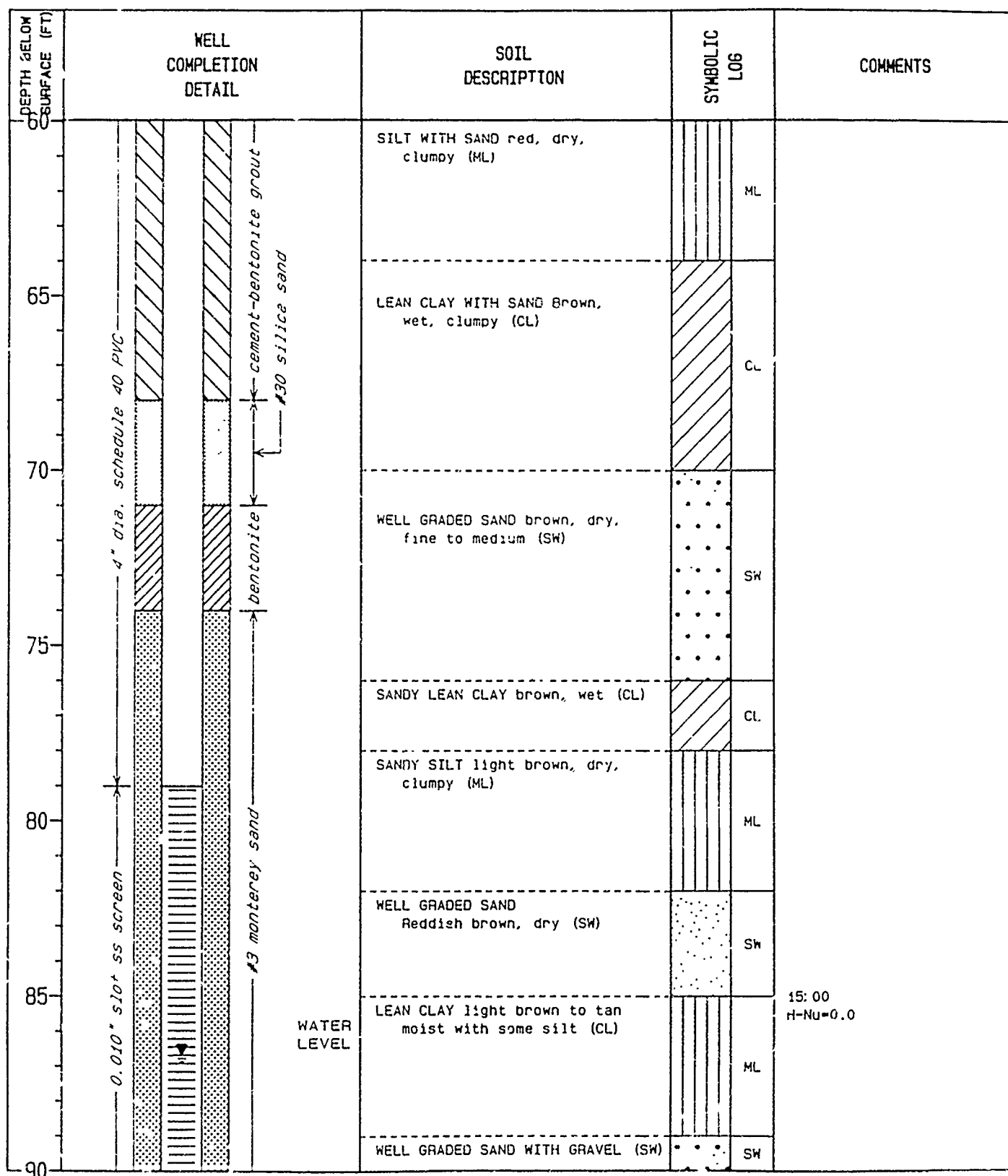
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1 SOUTH SIDE
 ELEVATION 87.08 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 7.36 FT NGVD 3/27/89 START 12/6/88 FINISH 12/7/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div> <div>3" dia. schedule 40 PVC</div> <div>cement-bentonite grout</div> </div>	SANDY SILT as above.	ML	Rapid Drilling
35				
40		LEAN CLAY WITH SAND reddish brown with small clumps of clay (CL)	CL	
45		POORLY GRADED SAND red, moist, fine (SP)	SP	
50				
55		WELL GRADED SAND red, dry, fine to medium sand (SW) becoming brown and coarser	SW	
60		SILT WITH SAND red, dry clumpy (ML)	ML	

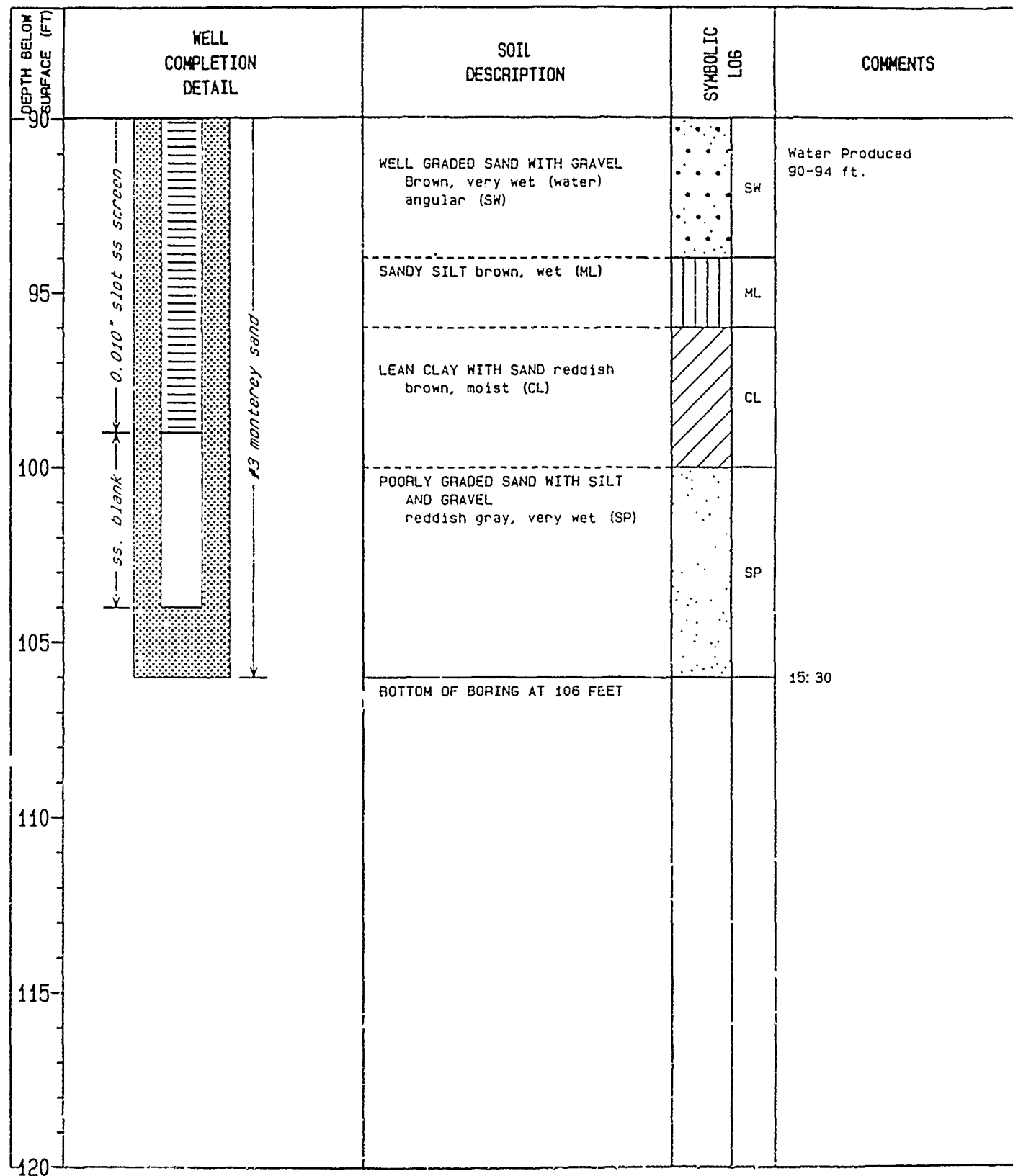
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-4GW	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1 SOUTH SIDE
 ELEVATION 87.08 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 7.36 FT NGVD 3/27/89 START 12/6/88 FINISH 12/7/88 LOGGER G.T. VOGT



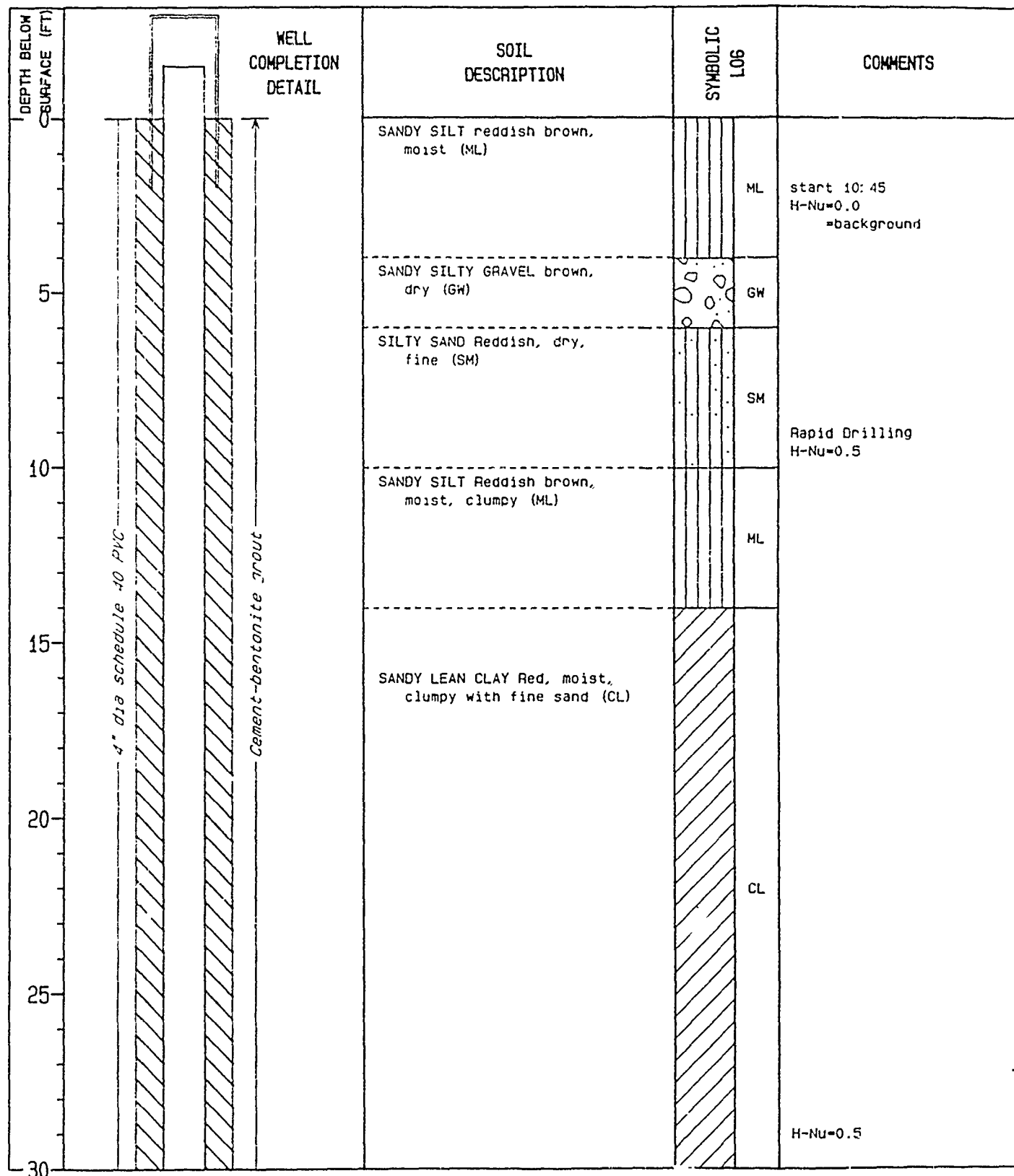
PROJECT NUMBER SAC24359.RI.04	BOHING NUMBER 13-C-4GW	SHEET 4 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1 SOUTH SIDE
 ELEVATION 87.08 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 7.36 FT NGVD 3/27/89 START 12/6/88 FINISH 12/7/88 LOGGER G.T. VOGT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-5GW	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION Landfill 1 EAST SIDE
 ELEVATION 92.44 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 8.93 FT NGVD 3/27/89 START 12/7/89 FINISH 12/7/89 LOGGER G.T. VOGT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-56W	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BE4LE AFB LOCATION Landfill 1 EAST SIDE
 ELEVATION 92.44 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 8.93 FT NGVD 3/27/89 START 12/7/89 FINISH 12/7/89 LOGGER G.T.VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4" dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	SANDY LEAN CLAY as above (CL)	CL	H-Nu=0.0 Rapid Drilling
35		POORLY GRADED SAND Red, dry, fine sand (SP)	SP	
40		SILTY CLAY Reddish brown, dry (CL)	CL	
45		WELL GRADED SAND Reddish, dry, fine to coarse (SW)	SW	
55		SANDY LEAN CLAY Reddish brown, damp with fine sand (CL)	CL	
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-56W	SHEET 3 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

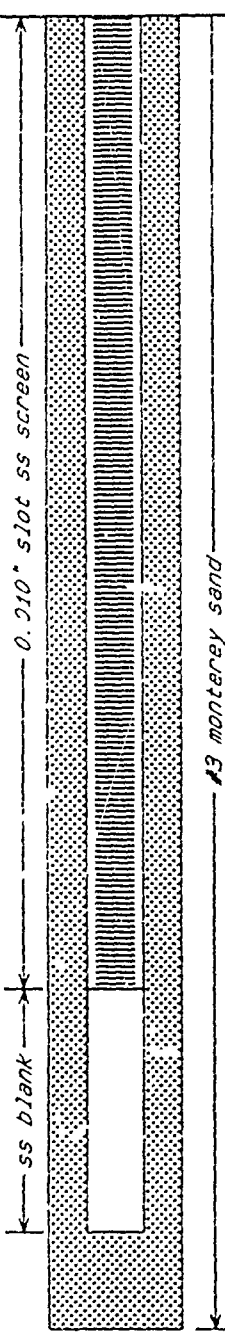
PROJECT BEALE AFB LOCATION Landfill 1 EAST SIDE
 ELEVATION 92.44 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 8.93 FT NGVD 3/27/89 START 12/7/89 FINISH 12/7/89 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		SANDY LEAN CLAY as above (CL)	CL	
		POORLY GRADED SAND Reddish brown, dry fine sand (SP)	SP	
65		SANDY SILT Reddish brown, moist, small clumps (ML)	ML	
70		POORLY GRADED SAND Reddish brown dry fine sand (SP)	SP	H-Nu=0.0
75		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)	GW GC	
80		LEAN CLAY Reddish brown, slightly moist, clumpy (CL)	CL	
85		POORLY GRADED SAND dry, fine sand (SP)	SP	
		LEAN CLAY Tannish-red, slightly, moist small clumps (CL)	CL	H-Nu=0.0
90				

PROJECT NUMBER SAC24359.PI.04	BORING NUMBER 13-C-5GW	SHEET 4 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

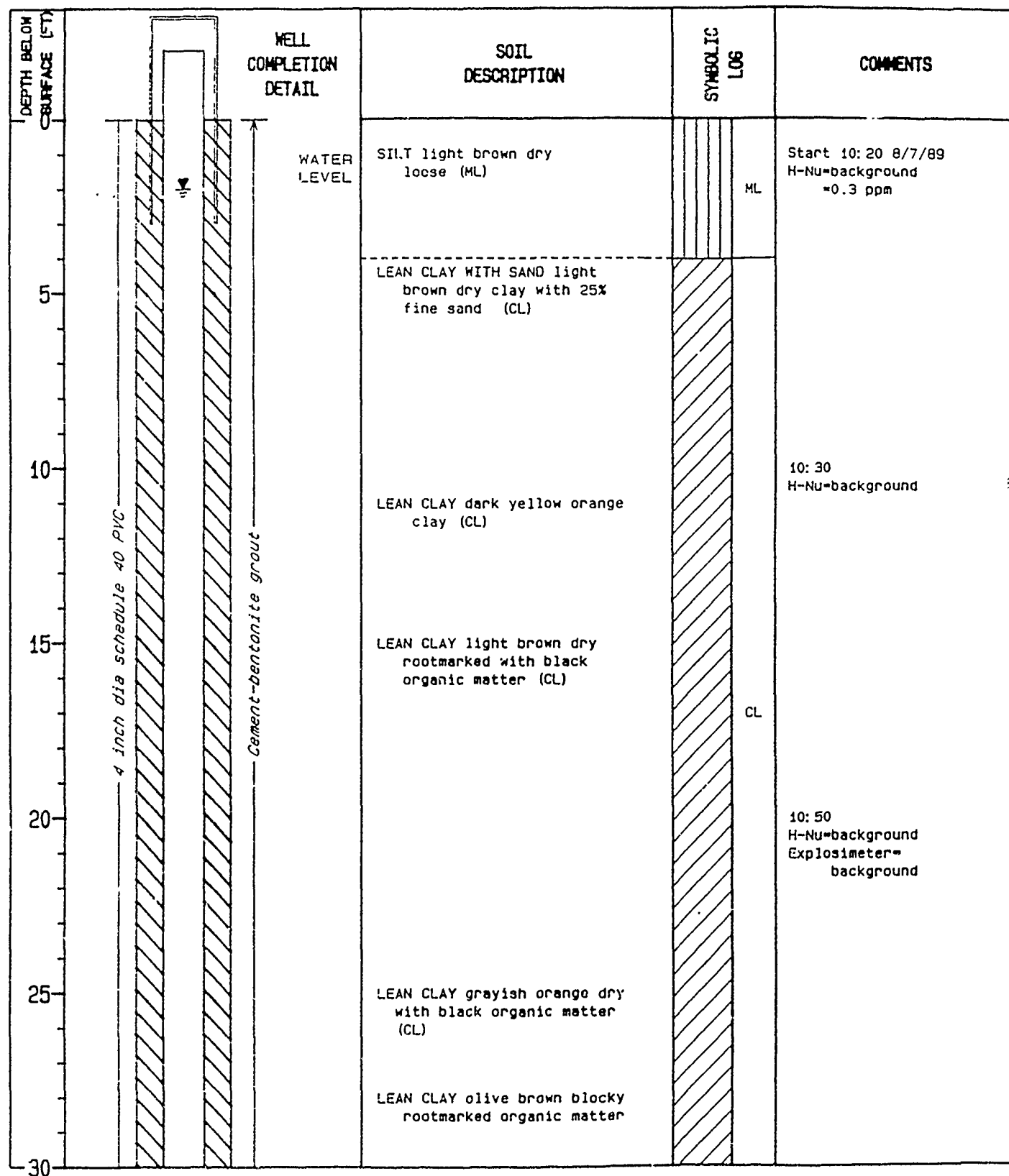
PROJECT BEALE AFB LOCATION Landfill 1 EAST SIDE
 ELEVATION 92.44 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 8.93 FT NGVD 3/27/89 START 12/7/89 FINISH 12/7/89 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90		LEAN CLAY WITH SAND Brown, moist with fine sand (CL)	CL	Water produced
95				
100				
105		wet and		
110		WELL GRADED GRAVEL (GW)	GW	H-Nu=0.0 Water in hole
115		CLAYEY GRAVEL WITH SAND Brown, wet (GC)	GC	14:00
120		BOTTOM OF BOREHOLE AT 117 FT.		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-66W	SHEET 1 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB	LOCATION NW of SITE 13
ELEVATION 90	DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000	
WATER LEVEL AND DATE	START 8/7/89 FINISH 8/8/89 LOGGER B. PEXTON



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-6GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NW of SITE 13
 ELEVATION 90 DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE START 8/7/89 FINISH 8/8/89 LOGGER B. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN CLAY as above	CL	
35		POORLY GRADED SAND moderate brownish yellow dry fine sand (SP)	SP	
40		LEAN CLAY moderate brownish yellow massive clay (CL) LEAN CLAY WITH SAND moderate brown dry massive clay with 10% fine sand	CL	H-Nu + Explosimeter =background
45		POORLY GRADED SAND light brown dry subangular fine to medium sand (SP)	SP	
50		LEAN CLAY WITH SAND light brown dry clay with 25% fine sand (CL)	CL	11:40 H-Nu + Explosimeter =background
55		POORLY GRADED SAND light to moderate brown micaceous arkosic subangular fine to medium sand (SP)	SP	all cuttings dry so far
		LEAN CLAY light brown root- marked moderately stiff with organic matter (CL)	CL	
		LEAN CLAY WITH SAND lt brown no dry strength 30% sand (CL)	CL SP	
60		POORLY GRADED SAND lt brown dry very fine to fine (SP)	SP	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-6GW	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NW of SITE 13
 ELEVATION 90 DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE START 8/7/89 FINISH 8/8/89 LOGGER R. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65		POORLY GRADED SAND light to moderate brown dry very fine to fine sand with 30% medium sand (SP)	SP	
70		LEAN CLAY WITH SAND moderate brown dry micaceous with organic mater 20% fine sand (CL)	CL	
75		LEAN CLAY light brown with grayish yellow reduced spots soft to moderately stiff clay (CL)	CL	
80		POORLY GRADED SAND light brown dry arkosic subangular fine to medium sand (SP)	SP	H-Nu + explosimeter =background all cuttings dry so far
85		WELL GRADED GRAVEL brown rounded mainly metamorphic clasts to 0.5 inch with some coarse sand (GW)	GW	
90		WELL GRADED SAND pale yellow brown volcaniclastic moderately cemented 25% andesite clasts (SW)	SW	first damp cuttings

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 13-C-66W	SHEET 4 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NW of SITE 13
 ELEVATION 90 DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE START 8/7/89 FINISH 8/8/89 LOGGER R. PEXTON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90		WELL GRADED SAND pale yellow brown volcaniclastic well cemented greywacke tight sandstone with weathered andesite clasts (SW)	SW	H-Nu + Explosimeter ckground tight sandstone water production will be poor in this zone
95		LEAN CLAY WITH SAND light brown wet 20% fine sand (CL)	CL	13:20 first water
100		LEAN CLAY dark yellow brown wet very soft (CL) grading to well indurated rootmarked clay with black organic matter		
105		WELL GRADED GRAVEL brown wet rounded fine to coarse gravel (GW)	GW	wet gravel cuttings producing a little water
		LEAN CLAY moderate brown wet moderately cemented root-marked organic matter (CL)	CL	
110		POORLY GRADED SAND dark yellow brown wet moderate cement very fine sand (SP)	SP	14:00 break for lunch pull back drive casing to 90 feet wait for water to rise. 15:05 water level 88.4 ft below ground
		BOTTOM OF BORING AT 111 FEET		
115				
120				

SITE 15

LANDFILL NO. 1

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-1SB	SHEET 1 OF 3
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 3
 ELEVATION 181.01 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 853 ANGLE 30 DEG SOUTH 20 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/1/88 FINISH 12/2/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SANDY LEAN CLAY WITH GRAVEL Reddish brown, wet (CL)	CL	11:20 Rig on site 12:00 Lunch 12:42 Begin drill Hnu = BG 13:05 hit garbage at 4 ft. Moved boring 18 ft to north. Deconned lead auger and bit. 13:20 U.S. Rental dozer arrives 13:49 Resume drill
5	0139a	1.0	17-35	LEAN CLAY WITH GRAVEL Reddish brown, moist in upper 5 inches, dry below (CL)		
10	0139	1.0	20-56-50/4	LEAN CLAY Brown, moist (CL) GRAVELLY LEAN CLAY Tan, dry, coarse rounded gravel (CL)		14:30 Drive 0139 15:03 Hnu = BG
15	0140a	0.5	21	SILT Tan, dry, grades reddish at bottom (ML)	ML	15:53 Hnu = BG
20	0141	1.5	21-42-60	SILT WITH SAND Brown, moist, fine sand (ML)		
25	0142a	1.0	19-34-53	SANDY SILT Brown, moist, fine to coarse sand (ML)		
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-1SB	SHEET 2 OF 3
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 3
 ELEVATION 181.01 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 20 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/1/88 FINISH 12/2/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0143	1.0	40-60/4*	SILT Tan, moist (ML)		16:00 Drive 0143 Hnu hollow stem = 86
35	0144a	1.5	23-50-50/4	SILT Tan, moist, oxidation stains, grades reddish with no stains at bottom (ML)		
40	0144	1.0	17-40-75/4	SILT Reddish brown and tan, clayey seam at top of sample (ML)		16:43 Drive sample Hnu hollow stem = 86 Driller cleans hole, pulls 10 ft of auger.
45	0145a	1.0	21-35	SANDY SILT Reddish brown and tan mottled, moist, fine grained sand (ML)	ML	16:50 End drill 12/2/88 07:40 Begin drill
50	0145	1.0	14-120/5	SANDY SILT Reddish brown and tan mottled, moist, fine grained sand (ML)		08:32 Hnu = 86
55	0184a	1.0	20-23	SANDY SILT Reddish brown, moist, fine to medium sand, white secondary mineralization in soil (ML)		09:06 Hammer broke downhole 12:45 Resume drill
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-1SB	SHEET 3 OF 3
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 3
 ELEVATION 181.01 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG SOUTH 20 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/1/88 FINISH 12/2/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0184	1.1	14-24-100	SILT WITH SAND Reddish brown, moist, fine grained sand (ML) SILT WITH SAND Reddish brown, moist, fine to coarse sand and granitic rock fragments (ML)	ML	13:30 BAFB 0184 duplicate
	0184b	0.9	24-79			
	0185	1.4	14-101			
65				END BORING AT 63.5 FEET		
70						
75						
80						
85						
90						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
15-C-258

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB








LOCATION LANDFILL 1, WOOD PIT

ELEVATION 141.60

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - NORTH 28 DEG EAST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/6/88 FINISH 12/7/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY Brown, wet, organics (CL)	 CL	12: 45 Begin drill 13: 30 Lunch break
5				WOOD, DEBRIS, RUBBER TIRE Wood pit material	 WOOD	
10	<input type="checkbox"/> 0151a	0.1	50	LEAN CLAY Brown, wet (CL)	 CL	
15	<input checked="" type="checkbox"/> 0151 <input type="checkbox"/> 0152a	1.5 0.5	20-40-79 20	SILT WITH SAND Brown, moist, black stains in soil, fine sand (ML)	 ML	14: 35 15: 00
20	<input checked="" type="checkbox"/> 0152	1.5	7-42-100	SILT WITH SAND Brown, moist, fine sand (ML)	 ML	
25	<input type="checkbox"/> 0153a	0.5	40	SILT WITH SAND Brown, moist, fine sand, white mineral in soil (ML)	 ML	
30	<input checked="" type="checkbox"/> 0153		32-46-47	SILT WITH SAND Brown, moist, fine sand (ML)	 ML	15: 41 Drive 12": pull; auger 12": drive 6"

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-2SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 1, WOOD PIT
 ELEVATION 141.60 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - NORTH 28 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/6/88 FINISH 12/7/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	<input type="checkbox"/> 0154a	0.5	29	SANDY SILT Reddish brown, moist, fine sand (ML)	ML	15:55
35						
38	<input checked="" type="checkbox"/> 0154	1.5	20-30-65	LEAN CLAY WITH SAND Reddish brown, moist, mottled, fine sand (CL)	CL	16:30
40						
42	<input type="checkbox"/> 0155a	0.5	30	LEAN CLAY Reddish brown, moist (CL)		17:00 End drill 12/7/88
44				SILT WITH SAND Gray, moist, (ML)	ML	07:20 Begin drill
45						
48	<input checked="" type="checkbox"/> 0155	1.5	40-108-80	POORLY GRADED SAND Gray, moist, fine grained, moderately cemented (SP)	SP	07:50 Drive 12"; pull; auger 12"; drive 6"
50						
53	<input type="checkbox"/> 0156a	0.5	36	SILTY SAND Gray, moist, fine grained, weakly cemented (SM)	SM	
55						
58	<input checked="" type="checkbox"/> 0156	1.2	105-139-150-100	WELL GRADED SAND Gray, moist, strongly cemented (SW)	SW	08:30 Drive 4-1/2"; pull; auger; repeat 4 times
60				END BORING AT 59.0 FEET		

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
15-C-3SB

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB



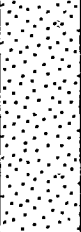

LOCATION LANDFILL 3

ELEVATION 165.72

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 57 DEG WEST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/5/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY WITH SAND Brown, moist, fine to medium sand (CL)		09:05 Begin drill 09:10 Hnu = BG
5	0145a	0.5	9			
	0145	1.5	57-75/3*-40-56/3*	LEAN CLAY WITH SAND Brown, moist, fine to medium sand (CL)		
10				LEAN CLAY Brown, dry (CL)		
15	0146a	0.1				
	0146	1.5	39-80-72	SANDY SILT Brown, moist, fine sand (ML)		
20				GRAVELLY SAND WITH SILT Brown, moist, fine sub- angular gravel and rock fragments, fine to coarse sand (SW)		Driller notes: Gravel at 23 ft 11:15 Lunch, drill crew leaves site 12:35 Resume drill
25	0147a	0.5	64			
	0147		50-70-100	SILT WITH SAND Brown, moist, fine sand (ML)		13:00 Hnu = BG
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-3SB	SHEET 2	OF 2
----------------------------------	---------------------------	---------	------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION LANDFILL 3
ELEVATION 165.72 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 57 DEG WEST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/5/88 FINISH 12/5/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30					ML	
35	0148a	0.4	30	SILTY SAND Brown, dry, fine sand, white powdery mineral (SM)		
40	0148	1.1	34-100/5"-100/5"	SILTY SAND Brown, moist, fine sand (SM)	SM	
45	0149a	0.5	60	WELL GRADED GRAVEL Gravel and cobbles in cuttings:	GW	
50	0149	1.5	89-77-105	SANDY LEAN CLAY WITH GRAVEL Brown, moist, fine sand, fine gravel (CL)	CL	
55	0150a	0.5	60	SILTY CLAYEY GRAVEL WITH SAND Yellowish brown, moist, fine to coarse sand, fine subrounded gravel (GC)	GC	Hnu cuttings - BG 15:25 Drive 0149 Hnu hollow stem - BG
60	0150		60-125-100	WELL GRADED SAND WITH SILTY CLAY AND GRAVEL Brown, moist, subrounded gravel (SW)	SW	16:15 Hnu at boring - BG
				CLAYEY GRAVEL WITH SAND Brown, moist, subrounded (GC)	GC	16:50
				END BORING AT 59.0 FEET		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-4SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 3
 ELEVATION 179.81 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 29 DEG - NORTH 15 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/7/88 FINISH 12/8/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	<input type="checkbox"/> 0157a	0.5	34	GRAVELLY LEAN CLAY Brown, dry, subangular gravel (CL)	CL	14:30 Drive 12"; pull: auger 12"; drive 6"
5	<input checked="" type="checkbox"/> 0157	1.5	37-80-31	SILT WITH SAND Tan, moist (ML)	ML	
	<input checked="" type="checkbox"/> 0158	1.5	34-74-37	SILTY CLAY Tan, moist (CL-ML)	CL ML	
10	<input type="checkbox"/> 0159a	0.5	34	SANDY SILT Tan, moist, fine sand, lenses of orange brown sandier silt (ML)	ML	15:15 Drive 12"; pull: auger 12"; drive 6"
15	<input checked="" type="checkbox"/> 0159	1.4	35-70-39	LEAN CLAY Brown, moist, black coloring in soil (CL)	CL	
20	<input type="checkbox"/> 0160a	0.5	40	LEAN CLAY Brown, moist, black coloring in soil (CL)	CL	
25	<input checked="" type="checkbox"/> 0160		30-43-63	LEAN CLAY WITH SAND Brown, moist, fine grained (CL)	CL	
30						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
15-C-4SB

SHEET 2 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 3

ELEVATION 179.81

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 29 DEG - NORTH 15 DEG WEST

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/7/88 FINISH 12/8/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
35	0161a	0.5	34	LEAN CLAY WITH SAND Brown, moist, fine sand, black coloring in soil (CL)	CL	
40	0161	1.3	44-46-49	SILTY SAND Brown, moist, well graded (SM)	SM	16:30
45	0162a	0.5	47	SILTY SAND WITH GRAVEL Reddish brown, moist, well graded, subrounded fine gravel (SM)		16:55 17:00 End drill 12/8/88 07:10 Begin drill
50	0162	1.4	43-70-40	CLAYEY GRAVEL WITH SAND Brown, moist, subangular, well graded sand (GC)	GC	07:43 Drive 12"; pull; auger 12"; drive 6"
55	0163a	0.5	31	SILT WITH SAND Brown, moist, fine sand (ML)	ML	
60	0163		19-32-70	SILT Brown, moist (ML)		08:48 Begin mixing grout
				END BORING AT 59.0 FEET		09:00 End drill

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
15-C-5SB

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION LANDFILL 3

ELEVATION 144.07

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL

WATER LEVEL AND DATE: WATER NOT ENCOUNTERED START 11/30/88 FINISH 11/30/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SILT Brown, moist, loose (ML)	ML	
5	0082a	1.1	15-25-28	POORLY GRADED SAND Brown, dry very dense (SP)		Some oil dripping from Kelly Driller notes: Gravels at 7 ft Hnu = BG LEL = 0.0%
10	0082	1.2	16-25-33	POORLY GRADED SAND Dark brown, moist, very dense (SP)	SP	11:45 Driller notes: Cobbles at 13 ft
15	0083a	0.8	39-50/3"	POORLY GRADED SAND Dark brown, very dense, some gravel and silt, cobbles (SP)		Driller notes: Cobbles at 16 ft
20	0083	1.4	16-45-46	SANDY SILT Brown, dry, hard, some mottling and staining (ML)	CL ML	12:20 12:20 Replace a bent auger flight
25	0084a	1.2	5-30-27	POORLY GRADED SAND Gray to brown, dry, very dense, some gravel (SP)	SP	Driller notes: Gravels at 29 ft
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 15-C-558	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION LANDFILL 3
 ELEVATION 144.07 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 11/30/88 FINISH 11/30/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	SAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0084	0.7	10-27-50/5*	POORLY GRADED SAND Brown to reddish brown, dry, very dense, some gravel and silt (SP)	SP	12:55 Driller notes: Gravel at 32 ft
35	0085a	1.2	21-42-50/3*	POORLY GRADED SAND Gray brown, dry, very dense, some cementation (SP)		13:12 Lunch 13:30 Resume drill 13:40 Driller notes: Gravel at 36 ft
40	0085	1.0	21-50/4*	WELL GRADED SAND Light brown to gray, dry, very dense (SW)	SW	Driller notes: Out of gravel at 39 ft 14:10
45	0086a	1.5	10-21-29	WELL GRADED SAND Gray to gray brown, dry, dense, reddish brown 1/2 inch lense at 46 ft (SW)		
50	0086	1.5	9-29-60	WELL GRADED SAND Gray to gray brown, very dense (SW)		14:50 Drive sample 14:52 End drill
				END BORING AT 51.5 FT		
55						
60						

SITE 16

EXPLOSIVE ORDNANCE DISPOSAL (EOD) AREA

Soil Boring and Well Logs

PROJECT NUMBER
3AC24359.RI.04

BORING NUMBER
16-C-3SB

SHEET 1 OF 1

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION EXPLOSIVE ORDNANCE DISPOSAL AREA

ELEVATION 171.07

DRILLING CONTRACTOR DIAMOND CORE

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE 880 VERTICAL

WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 11/29/88 FINISH 11/29/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SANDY SILT Medium brown, moist, soft, fine sand (ML)	ML	Third attempt to drill 16-C-3SB
				POORLY GRADED SAND Gray to tan, moist, very dense (SP)	SP	Hnu = BG
5	0082a	0.5	50/3 1/2"	POORLY GRADED SAND Light brown, moist, very dense (SP)		15:05 Auger refusal at 5.5 ft
				END BORING AT 5.5 FEET		
10						Note: The two angle borings scheduled for Site 16 were not drilled because of the near surface rock. No soil samples from 16-C-3SB were analyzed.
15						
20						
25						
30						

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
16-C-16W

SHEET 1 OF 2

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION NW OF TRENCH AT EOD

ELEVATION 159.36 FT NGVD

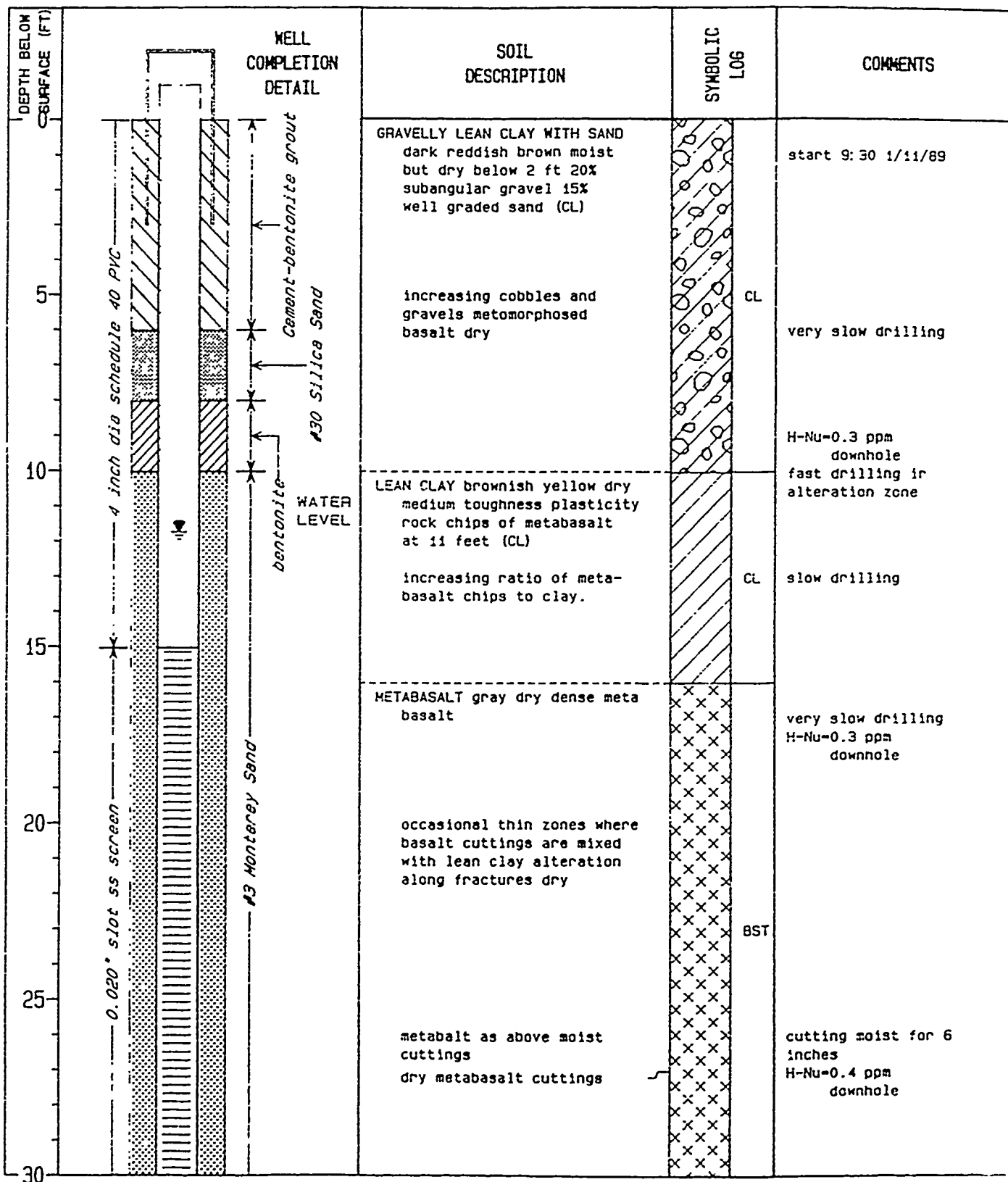
DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 147.64 FT NGVD 3/27/89 START 1/11/89

FINISH 1/11/89

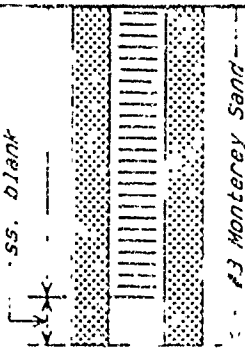

LOGGER C. ELLIOTT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 16-C-16W	SHEET 2 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION NW OF TRENCUT AT EOD
 ELEVATION 159.36 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 147.64 FT NGVD 3/27/89 START 1/11/89 FINISH 1/11/89 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
35		alter... zone lean clay and metabasalt	 BST	H-Nu=0.3 ppm downhole 11:30 1/11/89
40		BOT OF BORING AT 37 FEET		
45				
50				
55				
60				

SITE 18

BULK FUEL STORAGE FACILITY

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-1SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION BULK FUEL STORAGE FACILITY
 ELEVATION 117.15 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/3/89 FINISH 1/3/89 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
				POORLY GRADED GRAVEL Railroad ballast (GP)	GP	11:50 Begin drill 1.5 ft to soil
	0353	1.4	10-8-8	SANDY LEAN CLAY Light brown and gray, wet, well graded sand (CL)	CL	12:00 Hnu sample - 13ppm
5	0354	1.4	22-38-54	SANDY SILT Gray, moist, hard, brown mottled, well graded sand (ML)	ML	12:10
10	0355	1.5	23-69-125/5"	SILTY CLAY Light brown, dry, very hard, trace fine sand (CL-ML)	CL ML	12:20
	0356	1.5	15-60-150/4 1/2"			12:30 BAFB 0355 duplicate
				END BORING AT 13.0 FEET		12:55 End drill
15						
20						
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-258	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT	BEALE AFB	LOCATION	BULK FUEL STORAGE FACILITY
ELEVATION	117.12	DRILLING CONTRACTOR	DIAMOND CORE
DRILLING METHOD AND EQUIPMENT			
HOLLOW STEM AUGER - MOBILE B80 VERTICAL			
WATER LEVEL AND DATE			
WATER NOT ENCOUNTERED START 1/3/89 FINISH 1/3/89			
LOGGER N. JONES			

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG		COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT				
				POORLY GRADED GRAVEL Railroad ballast (GP)		GP	13: 57 Begin drill
	0357	1.5	19-26-32	SANDY GRAVELLY LEAN CLAY Medium brown, moist, very hard, mottled (CL)		CL	14: 00 Sample
5	0358	1.5	11-8-6	SILT WITH SAND Medium brown, moist, fine sand, mottled (ML)		ML	14: 40
10	0359	1.5	8-21-83	SILTY SAND Medium brown, moist, very dense (SM)		SM	14: 45 Hnu hollow stem = 100ppm
				END BORING AT 11.5 FEET			
15							
20							
25							
30							

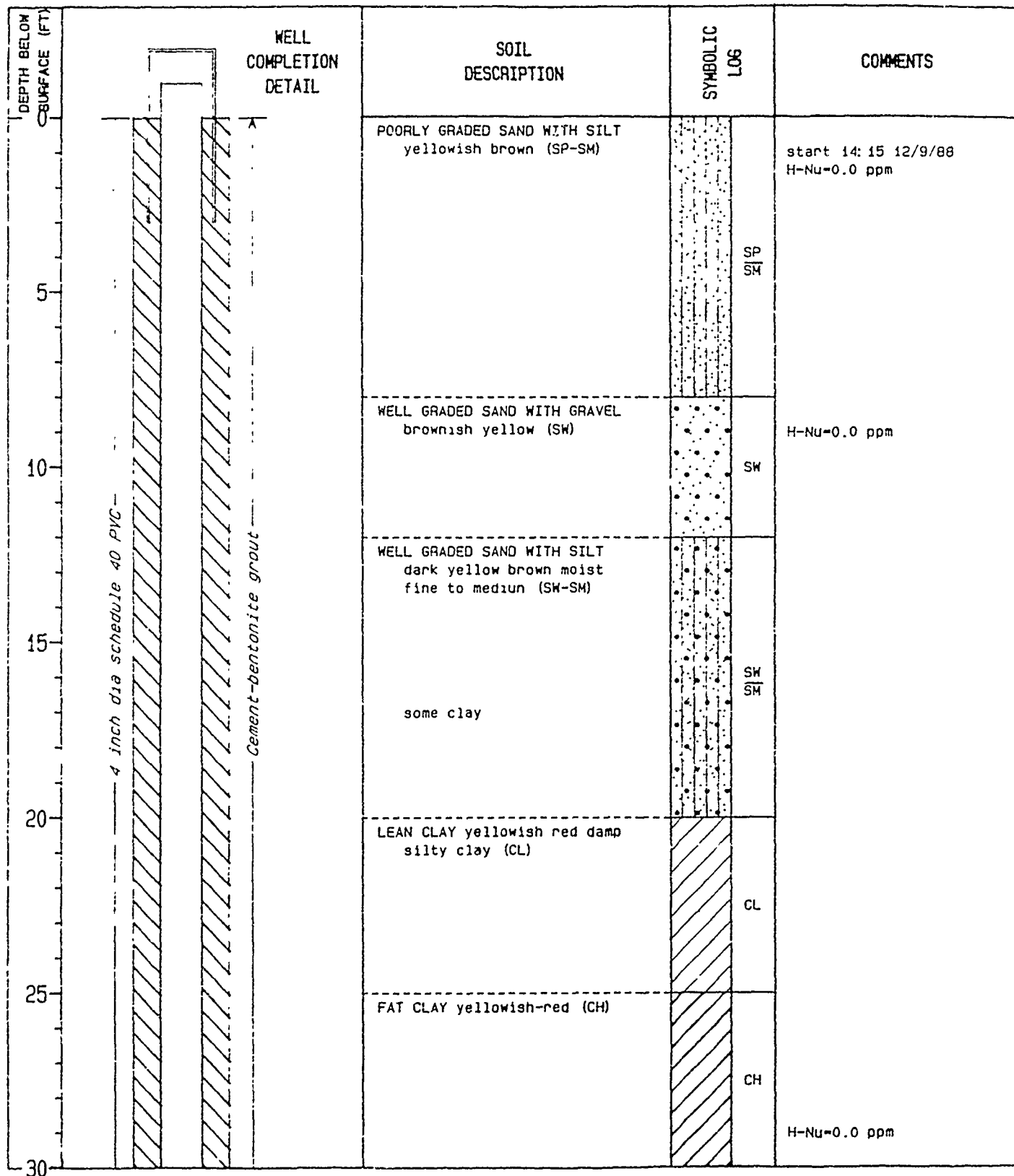
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-358	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT <u>BEALE AFB</u>	LOCATION <u>BULK FUEL STORAGE FACILITY</u>
ELEVATION <u>117.36</u>	DRILLING CONTRACTOR <u>DIAMOND CORE</u>
DRILLING METHOD AND EQUIPMENT <u>HOLLOW STEM AUGER - MOBILE B80 VERTICAL</u>	
WATER LEVEL AND DATE <u>WATER NOT ENCOUNTERED</u> START <u>1/3/89</u> FINISH <u>1/3/89</u> LOGGER <u>N. JONES</u>	

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0360	1.3	13-22-26	POORLY GRADED GRAVEL Railroad ballast (GP)	GP	15:40 Begin drill
				SANDY LEAN CLAY Medium brown, moist, hard, moderate plasticity, well graded sand (CL)	CL	
5	0361	1.5	6-9-	CLAYEY SAND Medium brown, moist, well graded sand, oily sheen on soil (SC)	SC	15:55
10	0362	1.5	10-29-32	SANDY LEAN CLAY Light brown, moist, very hard (CL)	CL	16:05 Hnu sample = 25ppm
				END BORING AT 11.5 FEET		14:10 End drill
15						
20						
25						
30						

PROJECT NUMBER SAC24359.9I.04	BORING NUMBER 18-C-16W	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF MOGAS TANKS
 ELEVATION 110.82 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/9/88 FINISH 12/12/88 LOGGER P. LAWSON



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-16W	SHEET 2 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WEST OF MOGAS TANKS
 ELEVATION 110.82 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL - STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/9/88 FINISH 12/12/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	WELL GRADED SAND WITH SILT yellow brown damp fine to medium sand (SW-SM)	SW SM	H-Nu=0.0 ppm
		SILT lt gray damp (ML)	ML	
35		POORLY GRADED SAND lt reddish brown damp fine sand with some silt (SP)	SP	
40		LEAN CLAY lt reddish brown damp (CL)	CL	
45		SANDY SILT reddish yellow damp silt and fine sand (ML)	ML	
50		LEAN CLAY reddish brown with some fine sand (CL)	CL	
55		decreasing sand	CL	
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-16W	SHEET 3 OF 5
SOIL BORING LOG		








PROJECT BEALE AFB LOCATION WEST OF MCGAS TANKS
 ELEVATION 110.82 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/9/88 FINISH 12/12/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4 inch dia schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	WELL GRADED SAND WITH SILT lt reddish brown (SW-SM)	SW SM	H-Nu=0.1 ppm
65		LEAN CLAY lt reddish brown (CL)	CL	
70		SILT lt brown (ML)	ML	
75		lt reddish brown siltstone to claystone with black organic matter	ML	
80		WELL GRADED SAND lt brown fine to coarse (SW)	SW	H-Nu=0.2 ppm
		LEAN CLAY lt brown (CL)	CL	
85		SILTY SAND brown (SM)	SM	
90		SILT WITH SAND lt brown silt with fine to medium sand (ML)	ML	

PROJECT NUMBER SAC24359.A1.04	BORING NUMBER 18-C-16W	SHEET 4 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WEST OF MOGAS TANKS
ELEVATION 110.82 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 0.19 FT NGVD 3/27/89 START 12/9/88 FINISH 12/12/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		WELL GRADED GRAVEL WITH SILT lt brown (GW-GM)	 GW GM	
95		LEAN CLAY reddish brown (CL)	 CL	
		WELL GRADED SAND WITH GRAVEL reddish brown (SW)	 SW	
100		SANDSTONE lt brown indurated fine to medium grained grey- wacke sandstone (SST)	 SST	
105		LEAN CLAY WITH SAND brown moist (CL)	 CL	first sign of water moist clay balls
110		SANDSTONE reddish brown moder- ately indurated fine to coarse grained sandstone (SST)	 SST	H-Nu=0.1 ppm
115		becoming gray brown		water level 12/12/88 after sitting 2 days
120		SILT WITH SAND lt gray moist to wet with claystone clasts (ML)	 ML	moist cuttings wet sandstone cuttings

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-16W	SHEET 5 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WEST OF MOGAS TANKS
 ELEVATION 110.82 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 0.19 FT NYGD 3/27/89 START 12/9/88 FINISH 12/12/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120	<p>0.020" slot ss screen</p> <p>Monterey Sand</p>	SILT WITH SAND as above (ML)	ML	first good water production in muddy sand and gravel stop drilling 16:30 12/9/88 finish borehole 8:00 12/12/88
125		WELL GRADED GRAVEL lt gray wet coarse sand and fine gravel (GW)	GW	
130		SANDY SILT lt brown to grey (SM)	SM	
134		LEAN CLAY pale brown indurated clasts of claystone in clay matrix	CL	
135		BOTTOM OF BORING AT 134 FT.		
140				
145				
150				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-2GW	SHEET 1 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WEST OF AVGAS TANKS
ELEVATION 114.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 3.07 FT NGVD 3/27/89 START 12/12/88 FINISH 12/12/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		CLAYEY SAND red-brown moist well graded sand 40% lean clay 10% gravel (SC)	SC	start 8:30 12/2/88 very fast drilling
5		LEAN CLAY brown-yellow moist low dry strength medium toughness and plasticity layers with strong cement thin layers of fat clay (CL)	CL	
10				
15		WELL GRADED SAND yellowish brown moist fine to medium sand 10% coarse sand trace fine rounded gravel (SW)	SW	very fast drilling
20		LEAN CLAY yellowish red dry medium toughness and plas- ticity no dilatancy layers of moderate to strong cementation (CL)	CL	H-Nu=0.8 ppm downhole drilling slows
25				
30		FAT CLAY reddish yellow dry high plasticity toughness and dry strength (CH)	CH	
		LEAN CLAY lt yellow brown moist medium plasticity toughness & dry strength (CL)	CL	

PROJECT NUMBER

SAC24359.RI.04

BORING NUMBER

18-C-26W

SHEET 2

OF 5

SOIL BORING LOG

PROJECT BEALE AFB






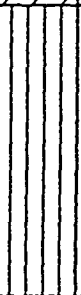

LOCATION WEST OF AVGAS TANKS

ELEVATION 114.07 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 3.07 FT NGVD 3/27/89 START 12/12/88 FINISH 12/12/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
33	4 inch dia schedule 40 PVC Cement-bentonite grout	LEAN CLAY lt yellowish brown moist medium plasticity toughness and dry strength (CL)	 CL	H-Nu=0.7 ppm downhole
35		POORLY GRADED SAND gray brown moist clean fine sand trace medium and coarse grains (SP)	 SP	
40		LEAN CLAY reddish brown moist medium plasticity toughness and dry strength slow dilatancy (CL)	 CL	
		POORLY GRADED SAND strong brown moist fine sand trace medium to coarse sand 10% clay (SP)	 SP	H-Nu=0.9 ppm downhole
45		LEAN CLAY yellowish brown moist medium plasticity toughness and dry strength trace fine sand (CL)	 CL	
		clay as above strong brown		
50		layers with strong cementation some stratification		
55		SILT yellowish brown moist low plasticity and toughness fast dilatancy trace fine sand (ML)	 ML	H-Nu=1.0 ppm downhole
60		FAT CLAY yellow-brown moist (CH)	 CH	

PROJECT NUMBER

SAC24359.RI.04

BORING NUMBER

18-C-26W

SHEET 3

OF 5

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION WEST OF AVGAS TANKS

ELEVATION 114.07 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 3.07 FT NGVD 3/27/89 START 12/12/88 FINISH 12/12/88 LOGGER C. ELLIOTT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		FAT CLAY yellowish brown moist high plasticity toughness & dry strength (CH)	CH	
		SANDY LEAN CLAY strong brown moist lean clay 40% fine sand (CL)	CL	
65		WELL GRADED SAND WITH GRAVEL yellowish brown moist fine to coarse sand 20% fine subrounded gravel (SW)	SW	
70		POORLY GRADED SAND WITH GRAVEL yellowish brown moist coarse to medium sand 20% fine subrounded gravel (SP)	SP	
75		becoming dark yellow brown increasing fines some layers of fat clay		
80		FAT CLAY dark yellowish brown dry high plasticity tough- ness and very high dry strength (CH)	CH	H-Nu=0.5 ppm downhole
85		LEAN CLAY brown yellow moist medium plasticity toughness and dry strength (CL)	CL	
		POORLY GRADED SAND dark yellow brown moist medium sand with 20% fine and 10% coarse (SP)	SP	
90		FAT CLAY yellowish brown moist high plasticity toughness and dry strength (CH)	CH	

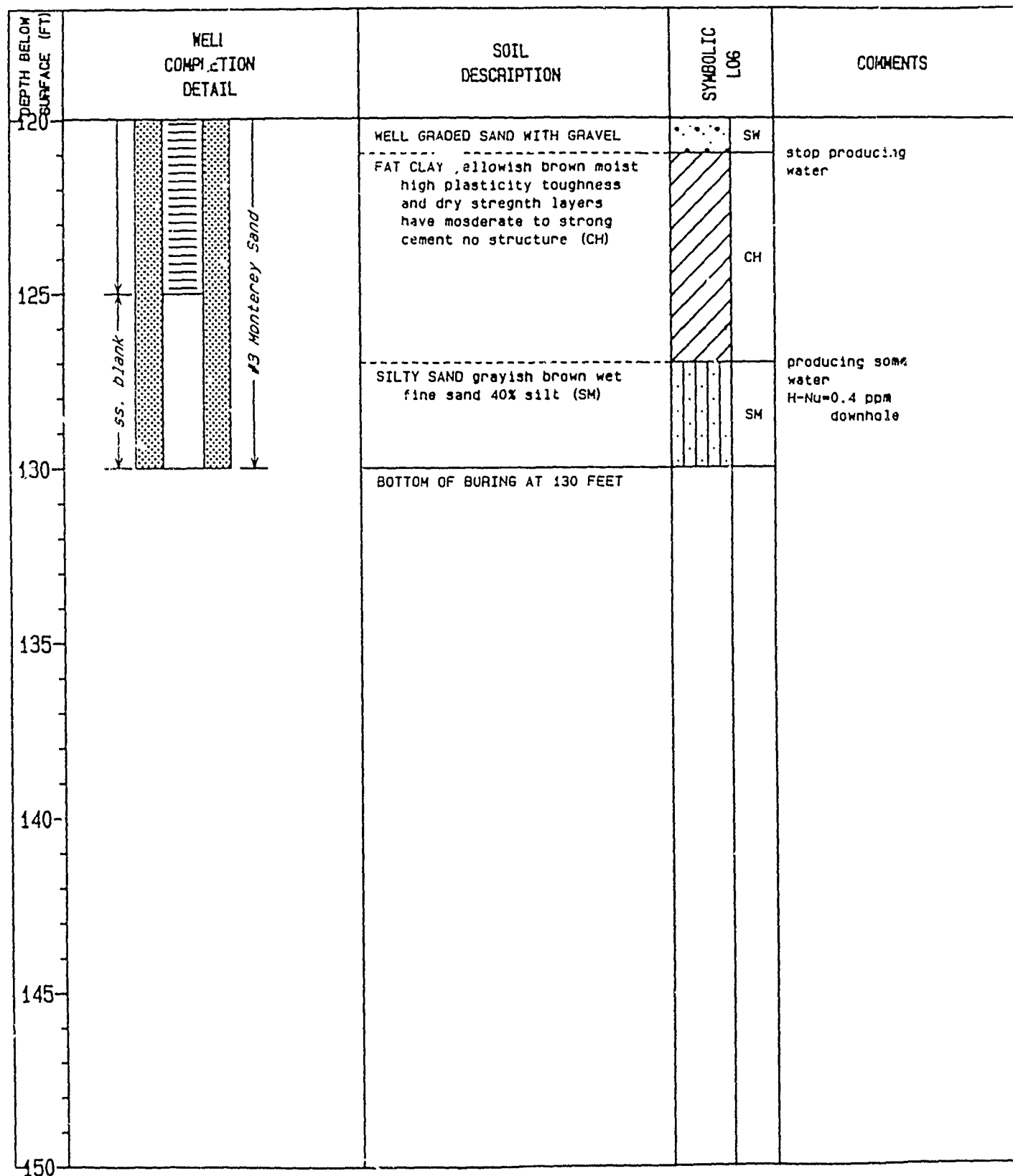
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-26W	SHEET 4 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF AVGAS TANKS
 ELEVATION 114.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.07 FT NGVD 3/27/89 START 12/12/88 FINISH 12/12/88 LOGGER C.ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95		FAT CLAY yellowish brown moist high plasticity toughness and dry strength (CH)	CH	H-Nu=0.4 ppm downhole
		LEAN CLAY dark yellowish brown moist medium plasticity and toughness (CL)	CL	
		CLAYEY SAND dark yellow brown moist well graded sand 20% lean clay (SC)	SC	
100		CLAYEY SAND WITH GRAVEL dark yellowish brown moist well graded sand with 30% fine rounded gravel 20% clay (SC)	SC	
105		POORLY GRADED SAND dark gray brown moist medium sand 20% fine 10% coarse sand trace fine gravel (SP)	SP	wet cuttings! producing water
110		CLAYEY SAND WITH GRAVEL dark yellowish brown wet well graded sand 20% clay 20% well graded subrounded to rounded gravel (SC)	SC	
115		WELL GRADED SAND WITH GRAVEL dark grayish brown wet fine to coarse sand 20% well graded rounded to subrounded gravel (SW)	SW	
120				H-Nu=0.4 ppm downhole

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 18-C-26W	SHEET 5 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF AVGAS TANKS
 ELEVATION 114.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.07 FT NGVD 3/27/89 START 12/12/88 FINISH 12/12/88 LOGGER C. ELLIOTT



D-158

SITE 19

PHOTOWASTE EMERGENCY HOLDING BASIN

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-1SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE EMERGENCY HOLDING BASIN
 ELEVATION 111.25 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE START 12/8/88 FINISH 12/8/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				SANDY SILT (ML)	ML	14:15 Begin drill
5	0186a	1.5	7-21-25	CLAYEY SAND Reddish brown and gray layers, moist, dense, black flakes (SC)	SC	
10	0188	1.5	19-36-77	SILTY CLAY Medium brown, dry, very hard, black flakes, blocky (CL-ML)		14:35
15	0189a	1.5	11-31-42	SILTY CLAY WITH SAND Medium brown, dry, very hard, fine sand (CL-ML)		
20	0189	1.5	21-25-33	SILTY CLAY WITH SAND Medium brown, dry, very hard, moderate plasticity (CL-ML)	CL ML	15:00
25	0208a	1.5	15-21-26	SANDY SILTY CLAY Light to medium brown, dry, hard, black flakes, mottled (CL-ML)		
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-1SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE EMERGENCY HOLDING B
 ELEVATION 111.25 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE _____ START 12/8/88 FINISH 12/8/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	0208	1.4	21-26-24	SILTY CLAY WITH SAND Reddish brown, moist, hard, flaky, fine sand, mottled (CL-ML)	CL ML	15: 25
35	0209a	1.5	15-15-19	SILTY CLAY WITH SAND Reddish brown, moist, hard, medium to coarse sand (CL-ML)		
40	0209	1.5	10-35-46	WELL GRADED SAND AND GRAVEL Moist, very dense, angular fine gravel (SW)	SW	15: 55
45	0210a	1.5	10-10-13	SANDY LEAN CLAY Gray, moist, reddish brown mottling, large black flakes (CL)	CL	Water standing at 44 ft in hole
50	0210	1.5	5-29-50	CLAYEY SAND Red brown, wet, very dense, angular to subangular gravel, weakly cemented gravel (SC)	SC	16: 30 End drill
				END BORING AT 51.5 FEET		
55						
60						




PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-2SB	SHEET 1 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE EMERGENCY HOLDING BASIN
 ELEVATION 110.66 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - SOUTH 25 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/13/88 FINISH 12/13/88 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						12:25 Begin drill Hnu = BG
5	0234	1.3	20-24-58	LEAN CLAY WITH SAND Brown, moist, fine sand (CL)		
10	0235	1.4	20-28-78	LEAN CLAY Gray, moist, oxidation stains (CL)	CL	12:48 Hnu = BG
15	0236a	0.5	43	LEAN CLAY Brown, moist, black coloring, blocky (CL)		13:00 Hnu = BG
20	0236	1.5	21-50-75	SILTY CLAY WITH SAND Brown, moist, well graded sand (CL-ML)	CL ML	13:15 Hnu = BG
25	0237a	0.5	37	SILT Brown, moist, black coloring (ML)	ML	13:27 Hnu = BG
30	0237		12-30-58	SILTY CLAY Brown, moist (CL-ML)	CL ML	13:40 Hnu = BG

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-2SB	SHEET 2 OF 2
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION PHOTOWASTE EMERGENCY HOLDING
 ELEVATION 110.66 DRILLING CONTRACTOR DIAMOND CORP
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 28 DEG - SOUTH 25 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/13/89 FINISH 12/13/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30	<input type="checkbox"/> 0238a	0.5	30	SILTY CLAY WITH SAND Brown, moist, medium to coarse sand (CL-ML)		13:55 Hnu = BG
35	<input checked="" type="checkbox"/> 0238	1.5	14-17-26	SILT WITH SAND Brown, moist, medium to coarse sand (ML)		14:12 Hnu = BG
40	<input type="checkbox"/> 0239a	0.5	25	LEAN CLAY Brown, moist, blocky (CL)		14:33 Hnu = BG
45	<input checked="" type="checkbox"/> 0239		18-25-38	LEAN CLAY Brown, moist (CL)		14:55 Hnu = BG
50				END BORING AT 48.5 FEET		
55						
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-3S8	SHEET 1 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION PHOTOWASTE EMERGENCY HOLDING BASIN
 ELEVATION 109.63 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 29 DEG - NORTH 20 DEG EAST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/5/89 FINISH 1/5/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0						
5	<input type="checkbox"/> 0311a	0.5	39	LEAN CLAY Tan, moist, firm, oxidation stains (CL)		Hnu cuttings - 86
10	<input checked="" type="checkbox"/> 0311	1.5	21-104-40	LEAN CLAY Brown, moist, firm, black coloring (CL)		12:50 Drive 12"; pull; auger 12"; drive 6"
15	<input type="checkbox"/> 0312a	0.5	51	LEAN CLAY Brown, moist, firm, black coloring (CL)	CL	
20	<input checked="" type="checkbox"/> 0312	1.5	33-51-137	LEAN CLAY Brown, moist, hard (CL)		13:25
25	<input type="checkbox"/> 0312a	0.5	72	LEAN CLAY Brown, moist, hard, blocky (CL)		
30	<input checked="" type="checkbox"/> 0313	1.4	12-41-57	LEAN CLAY Brown, moist, firm (CL)		14:05

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-3SB	SHEET 2 OF 2
----------------------------------	---------------------------	--------------

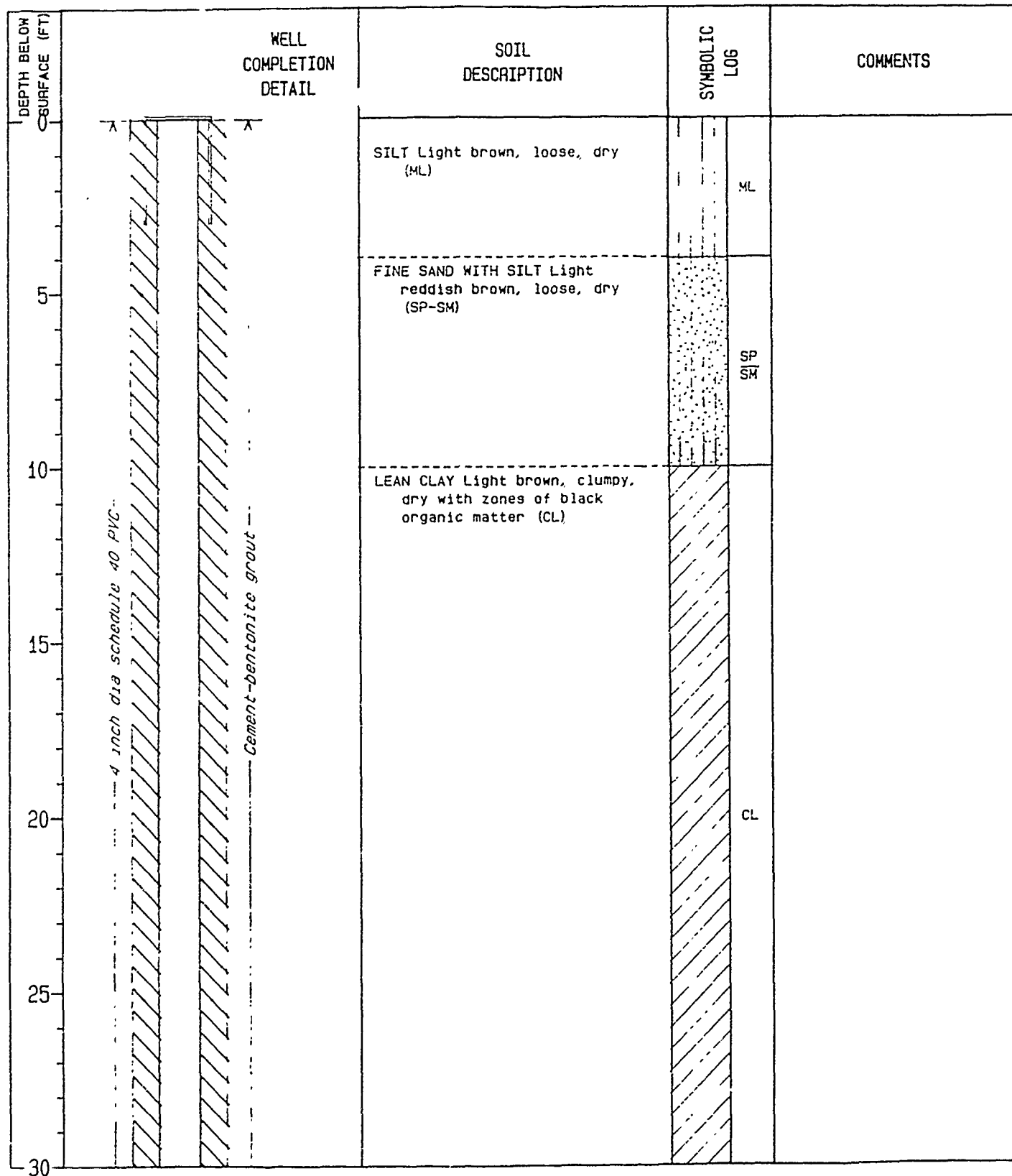
SOIL BORING LOG

PROJECT BEALE AFB	LOCATION PHOTOWASTE EMERGENCY HOLDING E
ELEVATION 109.63	DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 29 DEG - NORTH 20 DEG EAST	
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/5/89 FINISH 1/5/89 LOGGER D. M. SMITH	

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30						14:20 Rig down 14:40 Resume drill
35	0314a	0.5	40	LEAN CLAY WITH SAND Brown, moist, hard, fine sand (CL)		
40	0314	1.5	23-82-67	SANDY LEAN CLAY Reddish brown, wet, soft, well graded sand (CL)	CL	15:05 Drive 12"; pull: auger 12"; drive 6" Sampler wet when extracted.
45	0315a	0.5	35	LEAN CLAY Tan, moist, hard, black coloring, tan streaks (CL)		Sampler wet
50	0315	1.5	15-21-47	LEAN CLAY Tan, moist, firm, oxidation stains (CL)		15:50 Sampler wet
55				END BORING AT 50.0 FEET		
60						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-1GW	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION C ST, E OF EMERGENCY HOLDING BASIN
 ELEVATION 114.54 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 45.41 FT NGVD 3/27/89 START 12/12/88 FINISH 12/14/88 LOGGER P. LAWSON



PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
19-C-16W

SHEET 2 OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION C ST, E OF EMERGENCY HOLDING B

ELEVATION 114.54 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 45.41 FT NGVD 3/27/89 START 12/12/88 FINISH 12/14/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30		LEAN CLAY as above (CL)	CL	
35		SAND WITH CLAY Light reddish brown, dry, well graded (SW-SC)	SW SC	
40		LEAN CLAY WITH SAND Light reddish brown, dry with sand size particles of organic material (CL)	CL	
45				
50	4 inch dia schedule 40 PVC Cement-bentonite grout	WELL GRADED SAND WITH CLAY AND GRAVEL Light reddish brown, dry, angular rock fragments some oxidized zones (SW-SC)	SW SC	
55		gravel up to 1.5 cm little clay	SW SC	
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-16W	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION C ST, E OF EMERGENCY HOLDING BASIN
 ELEVATION 114.54 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 45.41 FT NGVD 3/27/89 START 12/12/88 FINISH 12/14/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
00		LEAN CLAY Light brown, clay with oxidized and reduced zones and little organic matter (CL)	CL	2" cobbles at 60'
65		POORLY GRADED SAND WITH CLAY brown, dry, fine to medium sand with clay clumps and organic matter (SP-SC)	SP/SC	
70		LEAN CLAY Light brown, dry with black organic matter (CL)	CL	
75		fine to medium sand clay shows reduced zones	CL	
80		SAND WITH LEAN CLAY AND GRAVEL light brown, dery, angular rock fragments, some rounded pebbles to 2 cm (SW-SC)	SW/SC	
85				
90				

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
19-C-1GW

SHEET 4 OF 4

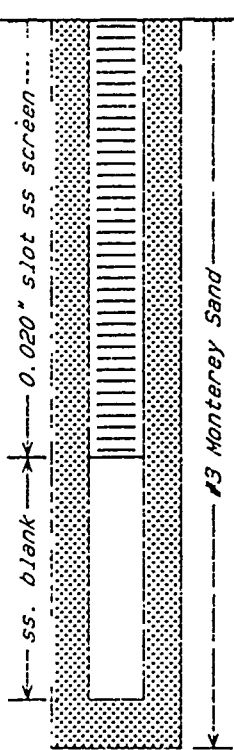
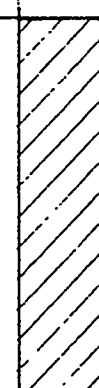

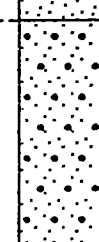
SOIL BORING LOG

PROJECT BEALE AFB LOCATION C ST, E OF EMERGENCY HOLDING E

ELEVATION 114.54 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 45.41 FT NGVD 3/27/89 START 12/12/88 FINISH 12/14/88 LOGGER P. LAWSON

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95		LEAN CLAY Light gray, dry, very stiff with minor organic matter (CL)		first sign of water
100		lean clay with siltstone fragments, very moist at 96 feet		
105		SANDSTONE reddish brown very wet fine grained sandstone (SP)		producing water from 100-105 ft.
		WELL GRADED SAND AND GRAVEL volcanic gravels, hornblende phenocrysts in basalt and andesite, chert. (SW)		
110		BOTTOM OF BORING AT 105 FT.		
115				
120				

PROJECT NUMBER

SAC24359.71.04

BORING NUMBER

19-C-26W

SHEET 1 OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION NW OF EMERGENCY HOLDING POND

ELEVATION 112.99 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

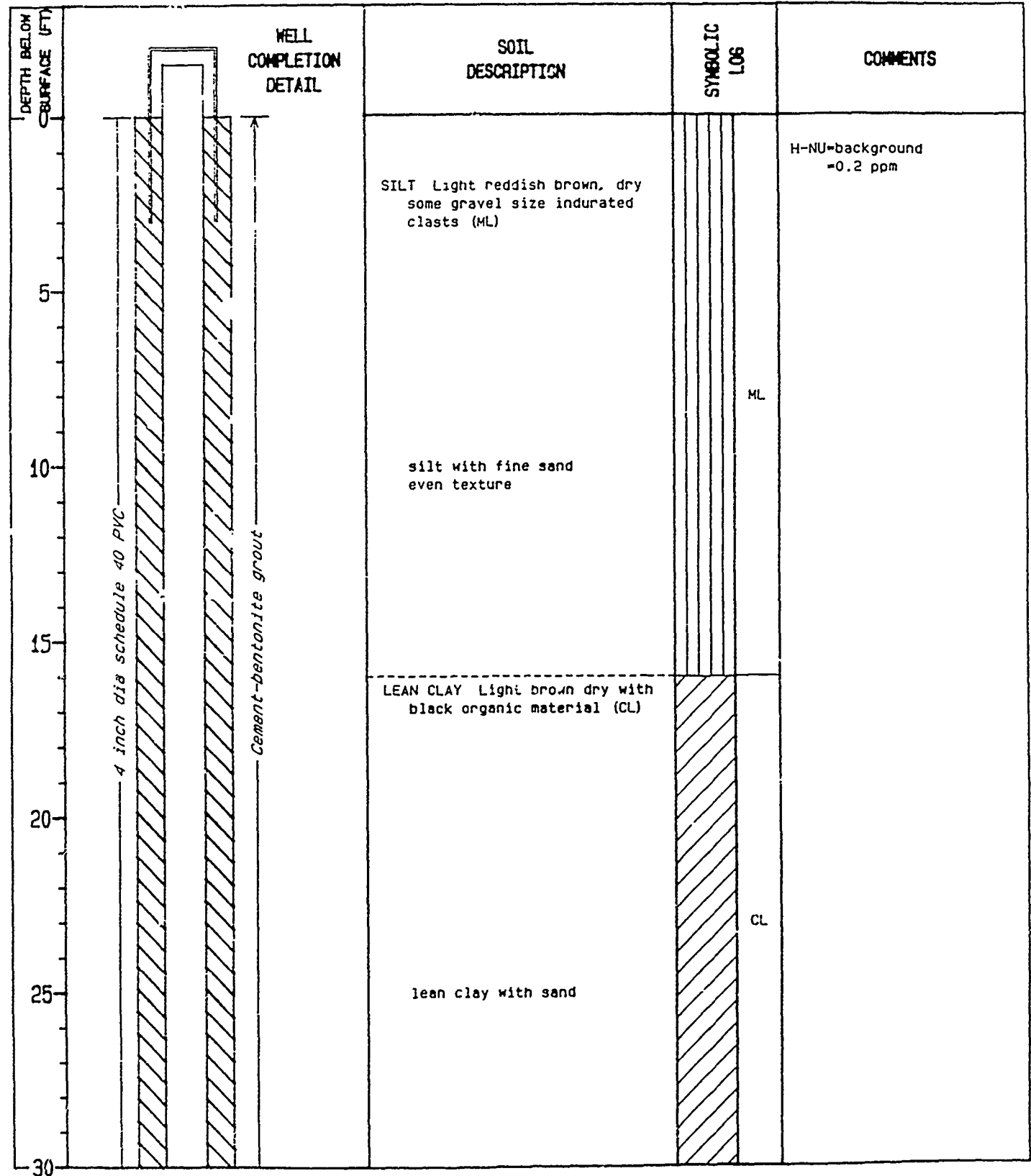
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 47.07 NGVD 3/27/89

START 12/8/88

FINISH 12/9/88

LOGGER G.T. VOGT



PROJECT NUMBER

SAC24359.RI.04

BORING NUMBER

19-C-26W

SHEET 2

OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION NW OF EMERGENCY HOLDING POND

ELEVATION 112.99 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL - STEVE JOHNSON

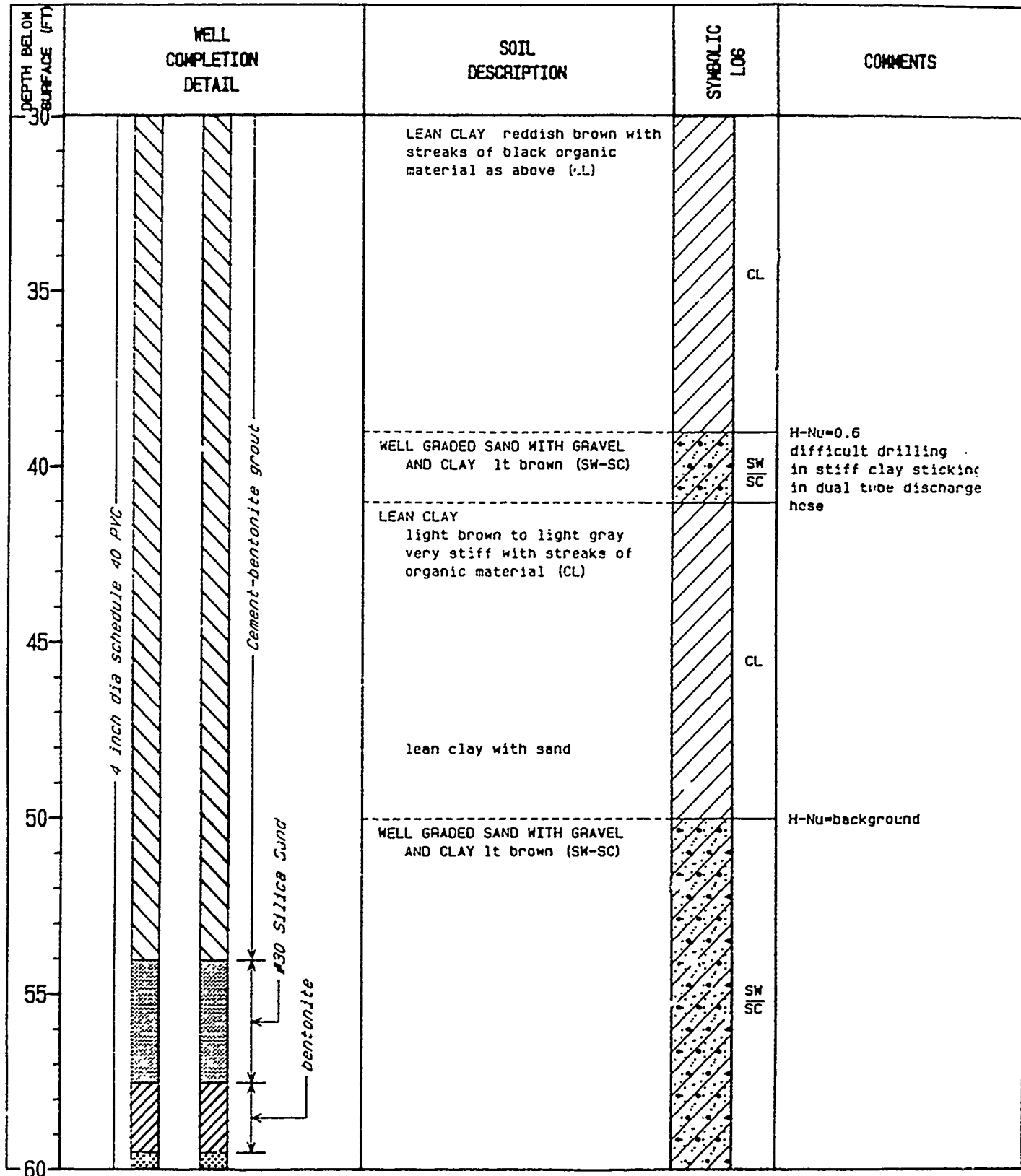
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 47.07 NGVD 3/27/89

START 12/8/88

FINISH 12/9/88

LOGGER G. I. VOGT



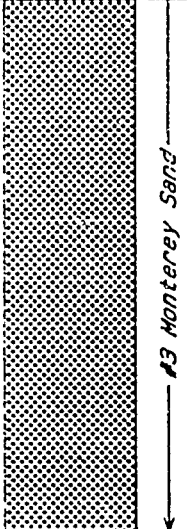
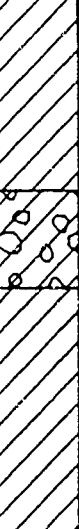
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-26W	SHEET 3 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NW OF EMERGENCY HOLDING POND
 ELEVATION 112.99 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 47.07 NGVD 3/27/89 START 12/8/88 FINISH 12/9/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65	<p>0.020" slot ss screen</p> <p>#3 Monterey Sand</p> <p>WATER LEVEL</p> <p>ss. blank</p>	LEAN CLAY Reddish brown with alternating oxidized and reduced layers (CL)	CL	
70		WELL GRADED SAND WITH CLAY AND FINE GRAVEL lt reddish brown to brown dry (SW-SC)	SW/SC	
75		LEAN CLAY lt reddish brown, moist with sand (CL)	CL	17:00 shut down over-night 8:00 12/13 water level 67 ft.
80		WELL GRADED SAND WITH CLAY AND GRAVEL lt. brown (SW-SC)	SW/SC	
85		LEAN CLAY lt reddish brown with minor fine to medium sand. Some reduced areas in indurated clay with small black organic particles (CL)	CL	
90		moist clay		moist clay

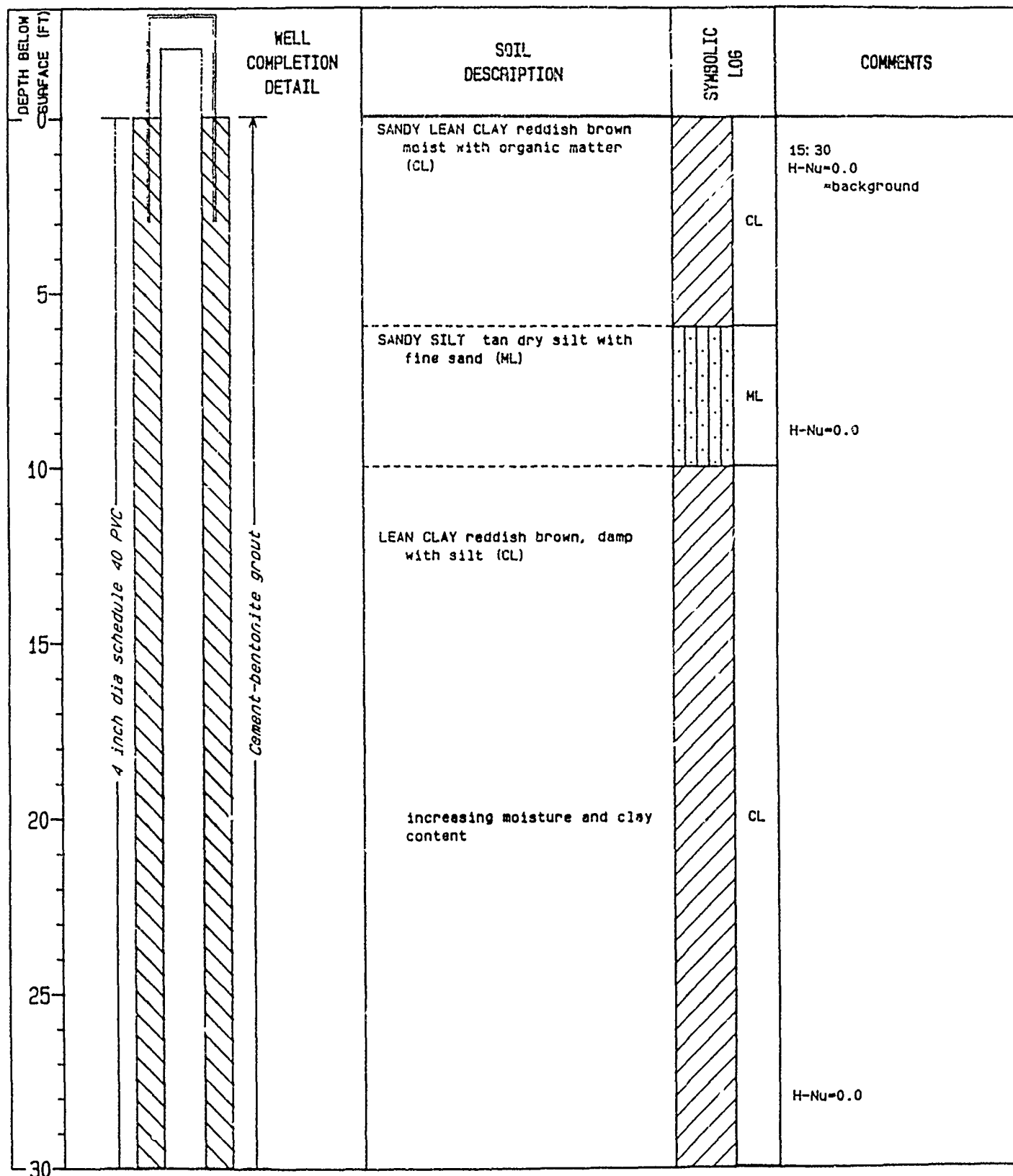
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-26W	SHEET 4 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION NW OF EMERGENCY HOLDING POND
 ELEVATION 112.99 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 47.07 NGVD, 3/27/89 START 12/8/88 FINISH 12/9/88 LOGGER G.T. VOGT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
		LEAN CLAY Light reddish brown with minor fine to medium sand (CL)		
95		GRAVELLY LEAN CLAY lt gray with coarse gravel (CL)		layer of coarse gravel
100		LEAN CLAY lt brown with fine to medium sand and some pebbles (CL)		
105		BOTTOM OF BORING AT 101 FT		
110				
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-36W	SHEET 1 OF 4
SOIL BORING LOG		






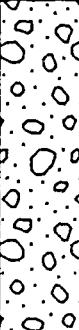
PROJECT BEALE AFB LOCATION SW OF EMERGENCY HOLDING POND
 ELEVATION 112.17 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 46.49 FT NGVD, 3/27/89 START 12/8/88 FINISH 12/9/88 LOGGER G.T. VOGT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-36W	SHEET 2 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SW OF EMERGENCY HOLDING POND
 ELEVATION 112.17 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 46.49 FT NGVD, 3/27/89 START 12/8/88 FINISH 12/9/88 LOGGER G.T.VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN CLAY reddish brown, moist with silt (CL)	 CL	
35		POORLY GRADED SAND red, dry, fine sand (SP)	 SP	
40		SANDY LEAN CLAY WITH GRAVEL moist clay with coarse sand and fine gravel (CL)	 CL	
45		LEAN CLAY tan silty highly compacted	 CL	
50		POORLY GRADED GRAVEL WITH SAND AND CLAY (GP-GC)	 GP GC	H-Nu=0.0
55		WELL GRADED GRAVEL WITH SAND damp rounded to angular (GW)	 GW	
60				

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
19-C-36W

SHEET 3 OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION SW OF EMERGENCY HOLDING POND

ELEVATION 112.17 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 46.49 FT NGVD, 3/27/89 START 12/8/88

FINISH 12/9/88

LOGGER G.T. VOGT

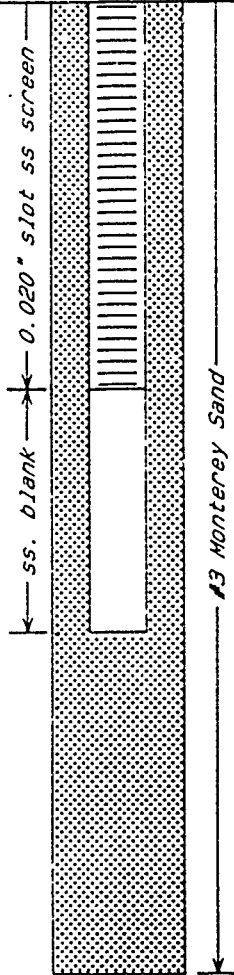
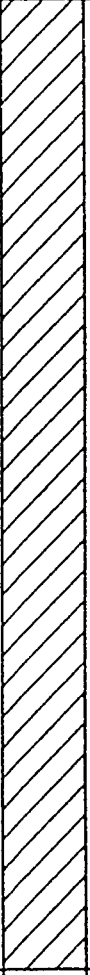
DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN CLAY reddish brown damp silty compacted (CL)	CL	
65		POORLY GRADED GRAVEL WITH SAND (GP)	GP	17:10 stop 7:45 12/8/88 start H-Nu=0.0
70		SANDY SILT reddish tan moist with fine sand (ML)	ML	
75		SANDY LEAN CLAY reddish moist silty (CL)	CL	
		CLAYEY SAND WITH GRAVEL reddish brown moist (SC)	SC	
80		CLAYEY GRAVEL WITH SAND brown wet rounded fine gravel (GC)	GC	
		SANDY LEAN CLAY reddish brown very wet (CL)	CL	Water produced at 81 feet
85				
90				

D-175

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-36W	SHEET 4 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SW OF EMERGENCY HOLDING POND
 ELEVATION 112.17 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 46.49 FT NGVD, 3/27/89 START 12/8/88 FINISH 12/9/88 LOGGER G.T.VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95		SANDY LEAN CLAY gray moist silty (CL) very dense brown wet minor gravel gray to tan moist silty	 CL	H-Nu-109
110		BOTTOM OF BORING AT 110. FT		
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-4GW	SHEET 1 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF EMERGENCY HOLDING BASIN
 ELEVATION 109.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 44.76 FT NGVD 3/27/89 START 1/4/89 FINISH 1/9/89 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		LEAN SANDY CLAY dark reddish brown soft (CL)		1/4/89 16:00 start
5		grayish yellow clay		H-Nu=2.4 ppm -background note drilling 12 inch dia. bore requires triple wall method which is much slower than dual wall
10		light brown silty clay		
15		streaks of black organic matter	CL	17:00 trouble with casing hammer stop 1/5/89 7:30 start
20		moderate brown		H-Nu=background
25		decreasing sand content		
30		light brown clay, becoming moderately stiff		

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-4GW	SHEET 2 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF EMERGENCY HOLDING BASIN
 ELEVATION 109.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 44.76 FT NGVD 3/27/89 START 1/4/89 FINISH 1/9/89 LOGGER C. ELLIOTT

DEPTH BELOW GROUND SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
35	<div>6 inch dia schedule 80 PVC</div> <div>Cement-bentonite grout</div>	SANDY LEAN CLAY light brown soft clay with fine to medium sand and black organic fragments (CL) becoming moderately stiff pale yellowish brown stiff clay with mottled colors and spots of black organic matter.	CL	difficult drilling clay sticking in discharge hose
45		POORLY GRADED GRAVEL (GP)	GP	
		CLAYEY GRAVEL well graded fine to coarse gravel and clay with some cobbles (GC)	GC	
50		WELL GRADED GRAVEL dry fine to coarse rounded gravel with some cobbles (GW)	GW	
55		SANDY LEAN CLAY WITH GRAVEL light brown to grayish orange stiff (CL)	CL	break to jack up rig with railroad ties
60				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-4GW	SHEET 3 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION SE OF EMERGENCY HOLDING BASIN
 ELEVATION 109.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 44.76 FT NGVD 3/27/89 START 1/4/89 FINISH 1/9/89 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65	<p>6 inch dia schedule 80 PVC</p> <p>0.020" slot ss screen</p> <p>#30 Silica Sand</p> <p>Cement-bentonite grout</p> <p>bentonite</p> <p>#3 Monterey Sand</p> <p>WATER LEVEL</p>	LEAN CLAY yellowish brown with light brown interbeds soft to moderately stiff (CL)	CL	
		becoming sandy		
		yellowish gray little sand		
70		light brown moist soft clay with some sand		
75		light brown very moist soft		
80		SANDSTONE dark yellowish brown hard well indurated graywacke sandstone with volcanic clasts (SW)	SST	
		basalt cobbles		
85		LEAN CLAY WITH SAND moderate brown (CL)	CL	
90				

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
19-C-46W

SHEET 4 OF 5

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION SE OF EMERGENCY HOLDING BASIN

ELEVATION 109.07 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 44.76 FT NGVD 3/27/89 START 1/4/89 FINISH 1/9/89 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
95	<div>0.020" slot ss screen</div> <div>#3 Monterey Sand</div>	SANDY LEAN CLAY moderate brown (CL)	CL	
100		CLAYEY SAND moderate brown moist (SC)	SC	
105		LEAN CLAY grayish orange pink may be altered volcanic ash (CL)	CL	17:00 stop 1/6/89 8:30 start
110		CLAYEY SAND gray brown wet (SC)	SC	begin producing water
115		SILTY SAND grayish brown wet flowing fine sand and silt layers with strong cementation (SM)	SM	
120		WELL GRADED SAND WITH CLAY dark grayish brown wet 90% sand (SW-SC)	SW SC	producing a great deal of water H-Nu downhole =0.3 ppm

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 19-C-46W	SHEET 5 OF 5
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION SE OF EMERGENCY HOLDING BASIN
 ELEVATION 109.07 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 44.76 FT NGVD 3/27/89 START 1/4/89 FINISH 1/9/89 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		LEAN CLAY brownish gray dry cemented (claystone?) (CL)	CL	stop producing water
		CLAYEY SAND fine-med sand (SC)	SC	some water
125		SANDSTONE cemented sands (SW)	SST	water stops slow drilling
		POORLY GRADED SAND WITH SILT dark grayish brown wet fine to medium sand (SP-SM)	SP SM	producing water
130		SANDSTONE dark grayish brown dry well graded sands with moderate to strong cement (SW)	SST	water stops
		CLAYEY SAND gray-brown wet (SC)	SC	
135		CEMENTED CLAY light brown gray dry strong cement (CL)	CL	trickle of water H-Nu downhole =0.3 ppm
		LEAN CLAY dark yellowish brown moist medium toughness and plasticity (CL)		water stops fast drilling
140		CEMENTED CLAYS yellowish brown dry to moist cement varies from weak to moderate (CL)		
145				H-Nu downhole =0.3 ppm
150		BOTTOM OF BOREHOLE AT 148 FEET		

SITE 20

GREASE PIT (SANITARY TREATMENT PLANT)

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 20-C-1SB	SHEET 1 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION GREASE PIT
 ELEVATION 94.99 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B53 ANGLE 30 DEG - SOUTH 70 DEG WEST
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/10/89 FINISH 1/10/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0				LEAN CLAY Brown, wet (CL)		10:30 Begin drill Hnu cuttings - BG
5	0316	1.5	70-48-36	LEAN CLAY Brown, dry, hard, mottled (CL)	CL	10:40 Drive 6"; pull: auger 6"; drive 12"; pull; only 6" recovery. Auger 12"; drive 12".
10	0317	1.3	22-45-75	LEAN CLAY Brown, moist, hard (CL)		11:40
15	0318a	0.5	38	CLAYEY SAND Brown, moist, well graded, micaceous (SC)	SC	
20	0318	1.5	27-34-50	CLAYEY SAND Brown, moist, well graded (SC)		12:30 Hnu hollow stem - BG
25	0319a	0.5	30	LEAN CLAY Brown, moist, firm (CL)	CL	12:45 - 13:15 lunch
30	0319	1.5	27-30-57	LEAN CLAY Tan, moist, hard, black organic particles 1 to 2 mm diameter (CL)		13:45

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 20-C-1SB	SHEET 2 OF 2
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION GREASE PIT
ELEVATION 94.99 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MORTLE B53 ANGLE 30 DEG - SOUTH 70 DEG WEST
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 1/10/89 FINISH 1/10/89 LOGGER D. M. SMITH

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
30						
35	<input type="checkbox"/> 0320a	0.5	37	LEAN CLAY Tan, moist, firm (CL)		
40	<input checked="" type="checkbox"/> 0320	1.5	35-90-48	LEAN CLAY WITH SAND Tan, moist, firm, well graded (CL)		14:20 Drive 12": pull: auger 12": drive 6"
45	<input type="checkbox"/> 0321a	0.5	28	LEAN CLAY Tan, moist, firm, blocky (CL)		
50	<input checked="" type="checkbox"/> 0321	1.5	35-70-135	LEAN CLAY WITH SAND Brown, moist, hard, fine grained (CL)		14:55
55				END BORING AT 49.0 FEET		
60						

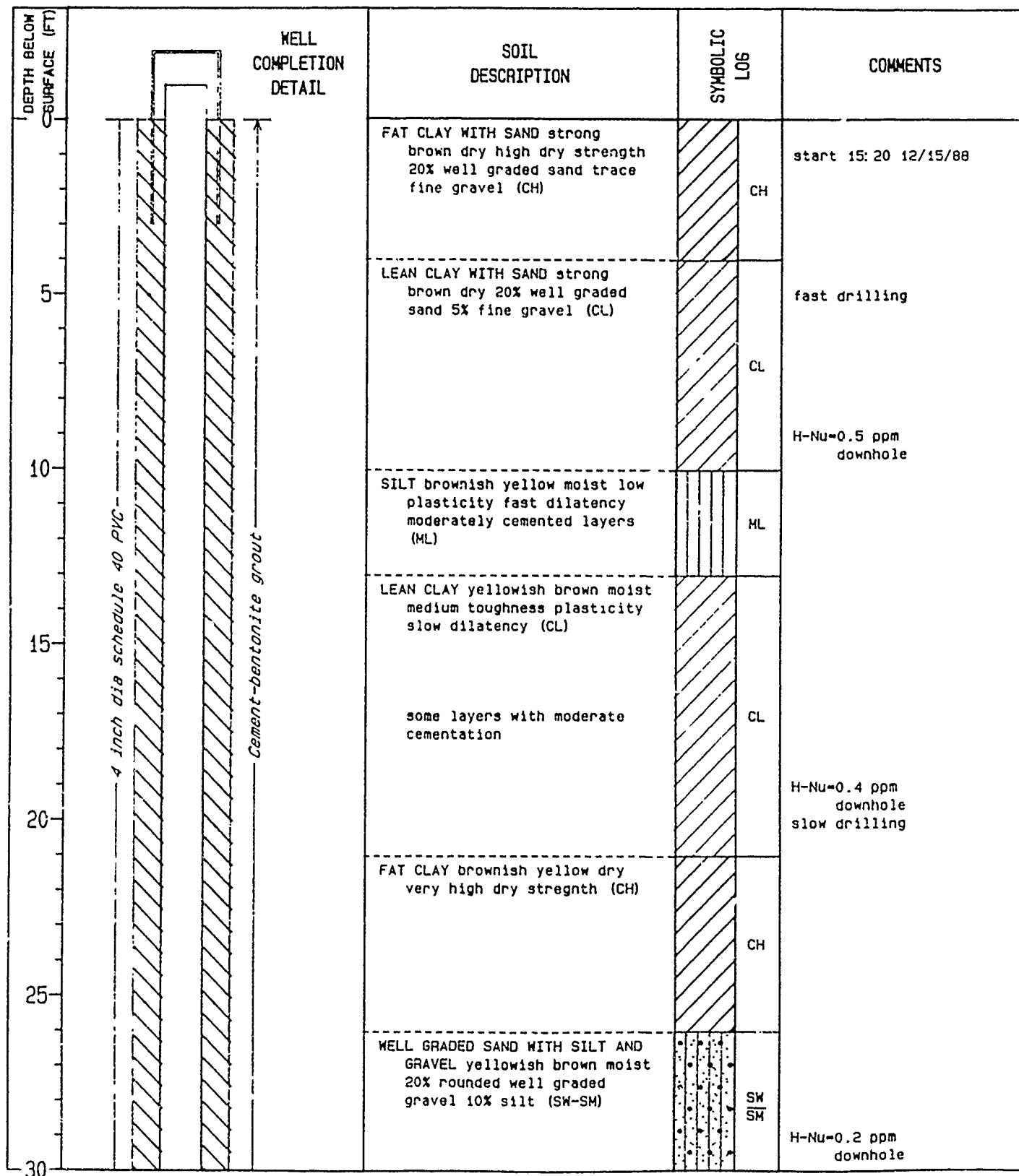
SITE 21

JP-7 ABOVEGROUND FUEL STORAGE TANKS

Soil Boring and Well Logs

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WEST OF 4 JP-7 TANKS
 ELEVATION 102.20 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.42 FT NGVD 3/27/89 START 12/16/88 FINISH 12/17/88 LOGGER C. ELLIOTT



D-184

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 21-C-16W	SHEET 2 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF 4 JP-7 TANKS
 ELEVATION 102.20 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.42 FT NGVD 3/27/89 START 12/16/88 FINISH 12/17/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">4 inch dia schedule 40 PVC</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Cement-bentonite grout</div> </div>	FAT CLAY dark yellowish brown moist high dry strength (CH)	CH	slow drilling
35		LEAN CLAY WITH SAND yellowish brown moist 20% fine sand (CL)	CL	
40		SILTY SAND WITH GRAVEL grayish brown moist 40% well graded sand 40% silt 20% well graded rounded gravel (SM)	SM	slow drilling H-Nu=0.3 ppm downhole
45		LEAN CLAY yellowish brown moist medium dry strength and plasticity (CL)	CL	normal drilling
50		CLAYEY SAND yellowish brown moist well graded sand 30% lean clay	SC	
55		WELL GRADED SAND dark yellowish brown moist some strongly cemented layers (SW)	SW	
		CLAYEY SAND yellowish brown moist fine sand 30% lean clay (SC)	SC	
		LEAN CLAY yellow brown moist medium dry strength plasticity toughness (CL)	CL	
60		SILTY SAND yellow brown (SM)	SM	H-Nu=0.3 ppm downhole

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 21-C-16W	SHEET 3 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF 4 JP-7 TANKS
 ELEVATION 102.20 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.42 FT NGVD 3/27/89 START 12/16/88 FINISH 12/17/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
65	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div>	SILTY SAND yellow brown moist well graded sand 20% silt as above (SM)	SM	normal drilling
70		WELL GRADED SAND grayish brown moist fine to coarse sand strongly cemented layers trace fine gravel (SW)	SW	
75		fine to coarse sand as above	SW	H-Nu=0.2 ppm downhole fast drilling
80		fines content increases	SW	
85		SILTY SAND yellowish brown moist fine sand strongly cemented layers 20% silt (SM)	SM	
90		CLAYEY SAND yellowish brown moist well graded sand 40% lean clay (SC)	SC	

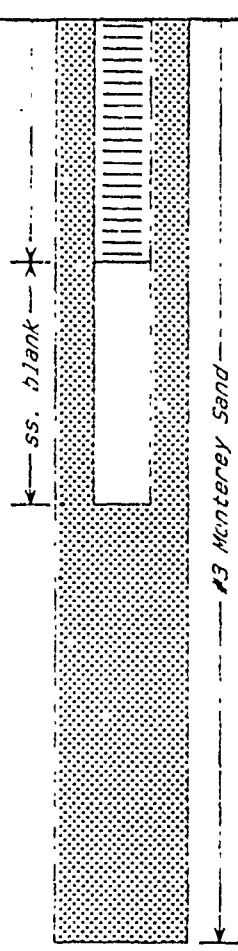
PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 21-C-1GW	SHEET 4 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF 4 JP-7 TANKS
 ELEVATION 102.20 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.42 FT NGVD 3/27/89 START 12/16/88 FINISH 12/17/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90		CLAYEY SAND as above (SC)	SC	H-Nu=0.3 ppm downhole wet cuttings H-Nu=0.2 ppm downhole
95		WELL GRADED SAND yellow brown moist medium to fine sand 10% coarse sand (SW)	SW	
100		POORLY GRADED SAND WITH SILT gray brown moist fine sand 10% silt (SP-SM)	SP SM	
105		SANDY LEAN CLAY yellow brown moist high dry strength medium plasticity and toughness 40% fine sand (CL)	CL	
110		CLAYEY SAND dark yellowish brown moist 20% well graded sand (CL)	SC	
115		LEAN CLAY brownish yellow dry moderately cemented (CL)	CL	
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 21-C-16W	SHEET 5 OF 5
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WEST OF 4 JP-7 TANKS
 ELEVATION 102.20 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 3.42 FT NGVD 3/27/89 START 12/16/88 FINISH 12/17/88 LOGGER C. ELLIOTT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
120		LEAN CLAY as above (CL)	CL	producing water
		CLAYEY SAND dark yellowish brown wet well graded sand 20% lean clay (SC)	SC	
125		SILTY SAND dark yellow-brown wet and flowing fine sand 40% silt (SM)	SM	
130		WELL GRADED SAND grayish brown wet fine to medium sand 10% coarse sand (SW)	SW	H-Nu=129. H-Nu=0.2 ppm downhole producing much water flowing sands had to over drill 10 feet in order to install the well
135		SILTY SAND dark yellow brown wet and flowing fine sand 40% silt (SM)	SM	water discharge slows H-Nu=0.3 ppm downhole
140		BOTTOM OF BORING AT 139 FEET		
145				
150				

SITE 23

NINTH TRANSPORTATION REFUELING/MAINTENANCE SHOP

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-158	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION 9th TRANSPORTATION MAINTENANCE SHOP
 ELEVATION 127.46 DRILLING CONTRACTOR DIAMOND COPE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/20/88 FINISH 12/20/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0338	1.3	19-34-56	SANDY SILT Tan, wet, very hard, coarse sand (ML)		13: 45 Begin drill 13: 50 Sample No Hnu readings because of rain.
5	0339	1.4	13-93-200/4*	SANDY SILT Tan, dry, very hard, black flakes (ML)		14: 10
10	0340	1.5	16-38-50	SANDY SILT Medium brown, dry, very hard, black flakes, fine sand, crumbly (ML)	ML	14: 35
	0341	1.5	24-45-65			14: 45 BAFB 0340 duplicate
15	0342	1.5	50-103-147	SANDY SILT Red brown, very hard, crumbly, weakly cemented (ML)		15: 00
20	0343	1.5	23-59-95	SANDY SILT Red brown, dry, very hard, fine sand (ML)		15: 30 End drill
				END BORING AT 21.5 FEET		
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-2S6	SHEET 1 OF 1
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION 9th TRANSPORTATION MAINTENANC OF
ELEVATION 129.58 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/20/88 FINISH 12/20/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0333a	0.3	13-20-15	WELL GRADED GRAVEL WITH COBBLES	GW	08:45 Begin drill Hnu sample = 15ppm
5	0333	1.3	6-11-23	GRAVELLY SILTY SAND Black to gray, saturated, slight odor (SM)	SM	09:00 Sample at 2.5 ft after no re- covery at 1.0 ft
5	0334	1.5	10-43-75	SANDY SILT Gray, dry, very hard, fine sand black flakes, crumbly, cemented (ML)		09:20 Hnu hollow stem = 7ppm
10	0335	1.5	10-25-38	SANDY SILT Light gray, moist, very hard, fine sand, mottled (ML)	ML	09:50
15	0336	1.5	20-44-70	SANDY SILT WITH LEAN CLAY Medium reddish brown, dry, very hard, black flakes, weakly cemented, mottled (ML)		10:00 Hnu hollow stem = 5ppm
20	0337	1.5	20-32-89	SILT WITH LEAN CLAY Reddish brown, moist, very hard, black flakes, crumbly (ML)		10:30
25				END BORING AT 21.5 FEET		
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-3SB	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION 9th TRANSPORTATION MAINTENANCE SHOP
 ELEVATION 127.43 DRILLING CONTRACTOR DIAMOND CORE
 DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
 WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/19/22 FINISH 12/19/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
	0282	1.5	8-9-9	SILTY CLAY Medium brown, moist, hard, black flakes, moderate plasticity (CL-ML)	CL ML	11:50 Begin drill 14:15 Sample
5	0283	1.0	41-98	SANDY SILT Tan, dry, hard, black flakes (ML)		12:00 Water at 6.5 ft
10	0284	1.5	20-63-90	SANDY SILT Reddish brown, moist, very hard, fine sand, crumbly, small gray pockets (ML)		12:30
	0285	1.4	27-65-100		ML	BAFB 0284 duplicate
15	0286	1.5	43-115-	SANDY SILT Reddish brown, very hard, fine sand, crumbly (ML)		12:45
20	0332	1.5	16-43-77	SANDY SILT Reddish brown, dry, very hard, black flakes, fine sand (ML)		13:25
				END BORING AT 21.5 FEET		13:25 Lunch 14:15 Sample 0282
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-4SB	SHEET 1 OF 1
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION 9th TRANSPORTATION MAINTENANCE
ELEVATION 122.91 DRILLING CONTRACTOR DIAMOND CORE
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER - MOBILE B80 VERTICAL
WATER LEVEL AND DATE WATER NOT ENCOUNTERED START 12/21/88 FINISH 12/21/88 LOGGER N. JONES

DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
	BAFB NUMBER	RECOVERY (ft)	BLOW COUNT			
0	0344	1.3	4-3-4	CLAYEY SAND Gray, wet, loose (SC)	SC	09:30 Begin drill 09:35
5	0345	1.5	36-64-97	SANDY SILT Brown, dry, very hard, black flakes, crumbly, fine sand (ML)	ML	09:50
10	0346	1.5	30-103-32	SILTY SAND Brown, dry, very dense, white crust, black flakes, mottled (SM)	SM	10:10
15	0347	1.5	16-53-76	SILTY SAND Very hard, white crust, black flakes (SM)	SM	10:25
20	0348	1.4	20-29-49	CLAYEY SAND Medium to dark brown, moist, very dense, black flakes, mottled (SC)	SC	10:40
				END BORING AT 21.5 FEET		10:50 End drill
25						
30						

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-16W	SHEET 1 OF 3
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION B ST & 26 ST.-9TH TRANS SHOP
ELEVATION 127.76 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 81.19 FT NGVD START 12/14/88 FINISH 12/14/88 LOGGER C. ELLOITT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	<p>4 inch dia schedule 40 PVC</p> <p>Cement-bentonite grout</p>	CLAYEY SAND Dark reddish brown moist, organic layers, well graded sand, 40% clay (SC)	SC	fast drilling
5		LEAN CLAY Brownish yellow, dry, no dilatency, medium plasticity and toughness (CL)	CL	
10		FAT CLAY Yellowish brown, dry, high dry strength (CH)	CH	
15		SILTY SAND Yellowish brown (ML)	ML	
20		LEAN CLAY Strong brown, moist, medium dry strength, toughness, and plasticity. slow dilatency (CL)	CL	
25		POORLY GRADED SAND WITH SILT Dark yellowish-brown, dry fine sand, 10% silt (SP-SM)	SP SM	
30		WELL GRADED SAND WITH SILT Dark yellowish brown, dry fine-medium sand (SW-SM)	SW SM	

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-16W	SHEET 2 OF 3
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION B ST & 26 ST.-9TH TRANS SHOP
 ELEVATION 127.76 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 81.19 FT NGVD START 12/14/88 FINISH 12/14/88 LOGGER C. ELLOITT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30		LEAN CLAY Yellowish brown, moist medium toughness, plasticity and dry strength (CL)	CL	
35		CLAYEY SAND Dark yellowish brown, moist, well graded sand, trace gravel, 40% clay (SC)	SC	
		LEAN CLAY WITH SAND Pale yellow brown with 20% fine sand (CL)	CL	
40		FAT CLAY Brownish yellow, dry high toughness, plasticity, dry strength (CH)	CH	drilling slows
45		SILTY GRAVEL WITH SAND Yellowish-brown, dry, 50% fine subrounded gravel 30% well graded sand, 20% silt (GM)	GM	
		trace cobbles		
50		LEAN CLAY Very pale brown, dry, medium toughness and plasticity slow dilatancy (CL)	CL	
55		WELL GRADED SAND Dark yellowish brown, wet, trace gravel (SW)	SW	wet cuttings
		POORLY GRADED GRAVEL WITH SILT AND SAND wet (GP-GM)	GP/GM	producing water
60		SANDY LEAN CLAY Yellowish brown moist, 30% well graded sand, 10% gravel, 60% clay (CL)	CL	water slows to a trickle water stops

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER 23-C-16W	SHEET 3 OF 3
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION B ST & 26 ST. -9TH TRANS SHOP
 ELEVATION 127.76 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-HOMER SMOTHERS
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 81.19 FT NGVD START 12/14/88 FINISH 12/14/88 LOGGER C. ELLIOTT

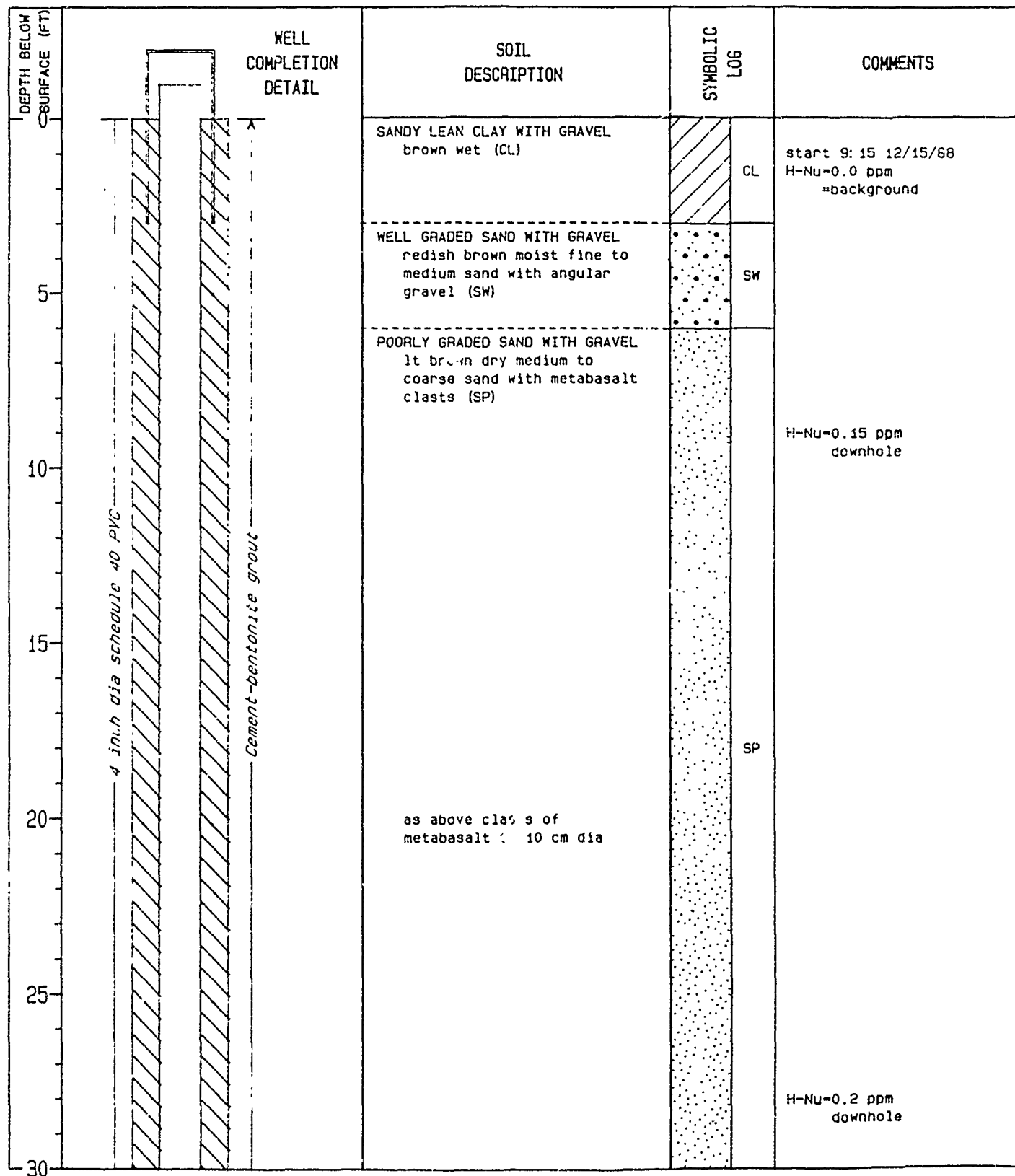
DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0		CLAYSTONE Grayish brown, dry, moderately to strongly cemented (CL)	CL	
65		SANDSTONE Yellowish brown, moist along zones of alteration, well graded grain sizes, moderate cement becoming stronger with depth (SW)		
70		Gray strongly cemented fine grained sandstone	SW	slow drilling
75		BOTTOM OF BOREHOLE AT 79 FEET		H-Nu=1.5ppm downhole
80				
85				
90				

BACKGROUND WELLS

Soil Boring and Well Logs

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-1GW	SHEET 1 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION ALERT DR. EAST OF DOOLITTLE GATE
 ELEVATION 169.22 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 89.65 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER G.T. VOGT



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-1GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION ALERT DR. EAST OF DOOLITTLE GA
 ELEVATION 169.22 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 89.65 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div>4 inch dia schedule 40 PVC</div> <div>Cement-bentonite grout</div> <div>130 Silica Sand</div>	POORLY GRADED SAND WITH GRAVEL as above (SP)	SP	
35		WELL GRADED SAND WITH GRAVEL brown dry fine to medium sand with rounded metabasalt gravels	SW	
40				
45				
50		POORLY GRADED SAND WITH GRAVEL brown dry coarse sand and fine metabasalt gravel (SP)	SP	H-Nu=0.5 ppm downhole
55				
60				

D-197

PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
BG-C-1GW

SHEET 3 OF 4

SOIL BORING LOG

PROJECT BEALE AFB

LOCATION ALERT DR. EAST OF DOOLITTLE GATE

ELEVATION 169.22 FT NGVD

DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON

DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000

WATER LEVEL AND DATE 89.65 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0				
65		POORLY GRADED SAND WITH GRAVEL brown dry coarse sand and fine gravel with metabasalt clasts (SP)	SP	
70		POORLY GRADED GRAVEL WITH SAND brown dry rounded pea gravel with sand (GP)	GP	H-Nu=0.0 ppm downhole
75		POORLY GRADED SAND reddish brown damp medium sand (SP)	SP	
80		SANDY LEAN CLAY WITH GRAVEL brown wet clay with fine sand and angular gravel (CL)		producing water from 79 to 82 feet
85		SANDY LEAN CLAY brown moist to wet clay with fine sand (CL)	CL	
90		CLAYEY SAND brown wet fine sand with clay (SC)	SC	H-Nu=0.0 downhole

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-1GW	SHEET 4 OF 4
SOIL BORING LOG		

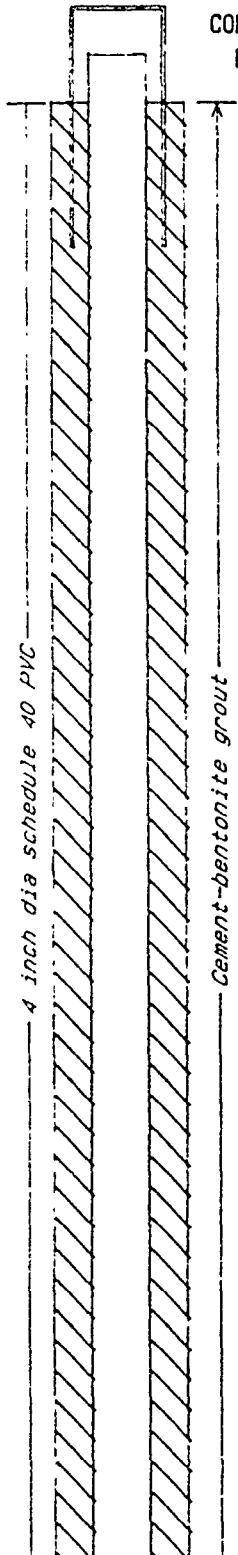
PROJECT BEALE AFB LOCATION ALERT DR. EAST OF DOOLITTLE GA
 ELEVATION 169.22 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 89.65 FT NGVD 3/27/89 START 12/8/88 FINISH 12/8/88 LOGGER G.T. VOGT

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90	<p>ss. blank</p> <p>#3 Monterey Sand</p>	CLAYEY SAND brown wet fine sand with clay as above (SC)	SC	
95		SANDY CLAY brown wet clay with fine sand (CL)	CL	
100		BOTTOM OF BORING AT 99 FEET		
105				
110				
115				
120				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-26W	SHEET 1 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WARREN SHINGLE NE OF GOLF COURSE
 ELEVATION 159.98 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION A21000
 WATER LEVEL AND DATE 71.57 FT NGVD 3/27/89 START 12/14/88 FINISH 12/15/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
0	 <p>4 inch dia schedule 40 PVC</p> <p>Cement-bentonite grout</p>	POORLY GRADED GRAVEL WITH SAND lt brown dry loose angular clasts with oxidized clay clasts (GP)	GP	start 14:15 12/14/88
5		LEAN CLAY WITH GRAVEL lt red- brown dry loose clay with angular rock fragments (CL)	CL	
10		POORLY GRADED SAND WITH GRAVEL lt gray slightly moist to dry medium to coarse sand some angular gravels (SP)	SP	cobble stuck in discharge hose slow drilling
15		WELL GRADED GRAVEL WITH SAND lt gray dry loose angular gravel (GW)	GW	H-Nu-background
20		POORLY GRADED SAND lt brown moist loots fine to medium sand (SP)	SP	moist sands
25		POORLY GRADED SAND WITH GRAVEL as above with rounded cobbles (SP)	SP	moisture increasing to 30 feet
30				

PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-2GW	SHEET 2 OF 4
SOIL BORING LOG		

PROJECT BEALE AFB LOCATION WARREN SHINGLE NE OF GOLF COUR
 ELEVATION 159.98 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
 DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
 WATER LEVEL AND DATE 71.57 FT NGVD 3/27/89 START 12/14/88 FINISH 12/15/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	<div> <div>1 inch dia schedule 40 PVC</div> <div>Cement-Bentonite grout</div> </div>	POORLY GRADED SAND lt brown very wet fine to medium sand with clasts of meta-basalt (SP)	SP	wet sands
35				bedrock contact?
40		CONGLOMERATE brown to reddish brown cemented igneous and sedimentary (sst claystone) clasts silt matrix moist when broken open some organic matter (CGL)	CGL	siltstone clasts are wet when broken open
45				
50				H-Nu=background
55				
60		SANDSTONE lt brown moist fine to medium grained with silt-stone interbeds (SST)	SST	

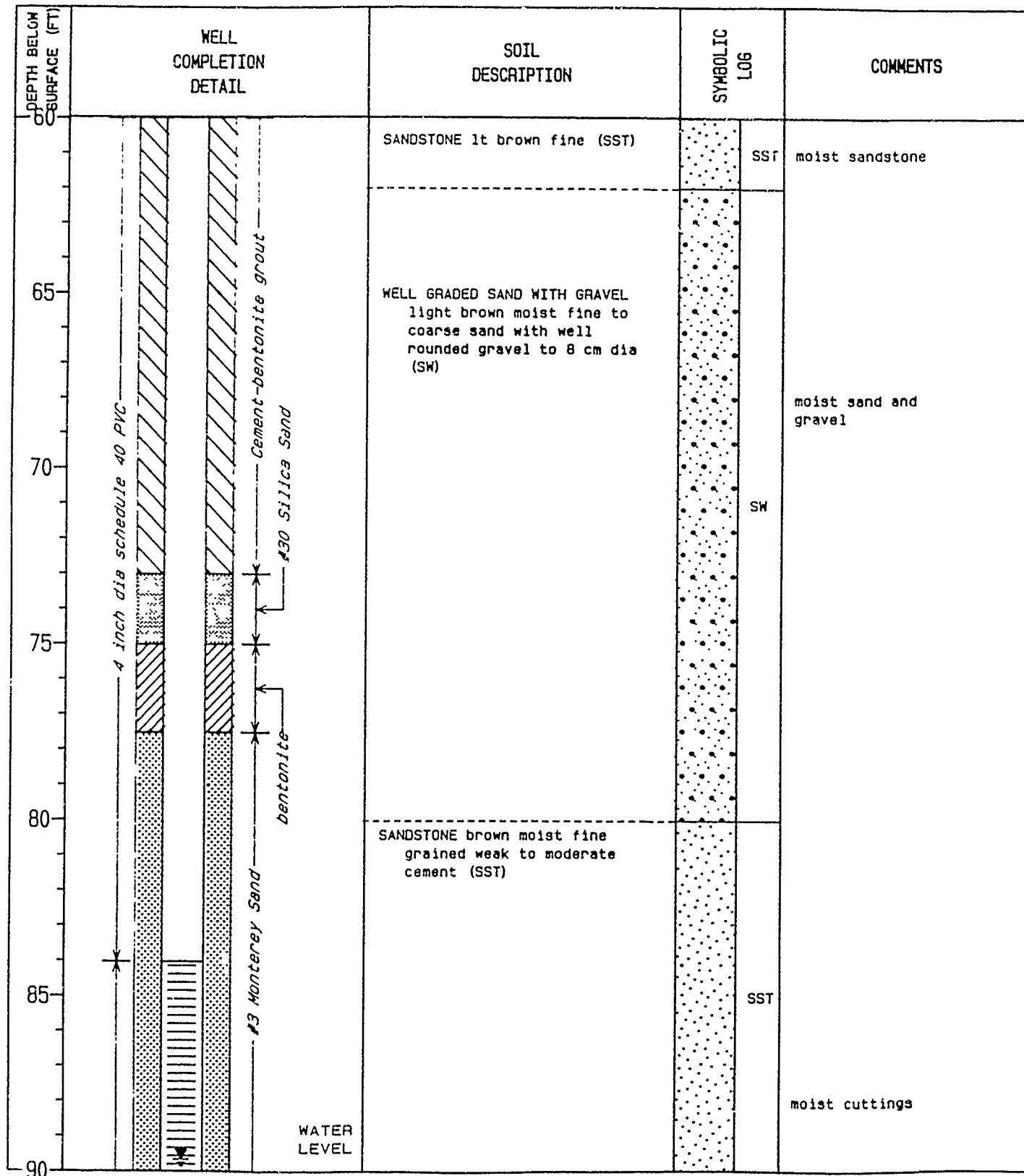
PROJECT NUMBER
SAC24359.RI.04

BORING NUMBER
BG-C-2GW

SHEET 3 OF 4

SOIL BORING LOG

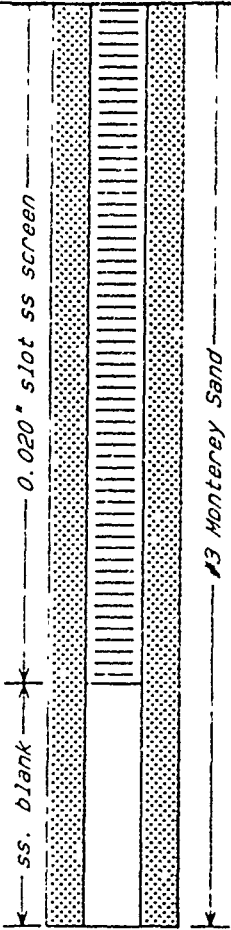

PROJECT BEALE AFB LOCATION WARREN SHINGLE NE OF GOLF COURSE
ELEVATION 159.98 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 71.57 FT NGVD 3/27/89 START 12/14/88 FINISH 12/15/88 LOGGER P. LAWSON



PROJECT NUMBER SAC24359.RI.04	BORING NUMBER BG-C-2GW	SHEET 4 OF 4
----------------------------------	---------------------------	--------------

SOIL BORING LOG

PROJECT BEALE AFB LOCATION WARREN SHINGLE NE OF GOLF COURSE
ELEVATION 159.98 FT NGVD DRILLING CONTRACTOR LAYNE ENVIRONMENTAL-STEVE JOHNSON
DRILLING METHOD AND EQUIPMENT DUAL TUBE PERCUSSION AP1000
WATER LEVEL AND DATE 71.57 FT NGVD 3/27/89 START 12/14/88 FINISH 12/15/88 LOGGER P. LAWSON

DEPTH BELOW SURFACE (FT)	WELL COMPLETION DETAIL	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
90		SANDSTONE brown wet fine grained moderately to well indurated with bands of dark grains (SST)		producing water
95		SANDSTONE greenish brown fine to medium grained poorly indurated layers of dark mineral grains (SST)		
100				
105				
110		BOTTOM OF BORING AT 109 FEET		
115				
120				

APPENDIX E

AQUIFER TESTING METHODOLOGY AND PLOTS

Appendix E
AQUIFER TESTING METHODOLOGY AND PLOTS

INTRODUCTION

Monitoring wells constructed during IRP Stage 2-1 at Beale AFB were given short-term pump tests to provide an estimate of yield and furnish a picture of hydrogeologic conditions in the immediate vicinity of the well. In addition, Well 19-C-4 was given a 72-hour drawdown test and a 72-hour recovery test to supply an estimate of aquifer parameters that affect groundwater flow velocity. A discussion of hydrogeology at Beale AFB that affects the results of the pump tests is presented in Section 2 of this report. Plots of the pump tests are provided in this appendix, together with a discussion of methodology and a summary of results.

The groundwater system at Beale AFB is characterized by its alluvial geologic setting, in which isolated coarse-grained stream channel deposits are contained within a matrix of fine-grained overbank deposits. There is no "aquifer" in a textbook sense. Groundwater tends to flow in relatively more permeable lenticular clayey and silty sands contained within a complex assemblage of sandy clays and sandy silts. Thus, rather than identifiable aquifers that may be correlated from place to place, the groundwater may be considered to flow in a single, large-scale heterogeneous system.

In a such a setting, pump tests must be regarded as indicators of the yield of the well, as estimates of hydrologic conditions, and as a descriptive tool to help define the subsurface geology. Historically, groundwater analytical techniques have been developed using simplifying assumptions. These include such assumptions as that aquifers and groundwater flow paths are horizontal, are bounded by units capable of being described mathematically, are infinite in areal extent, are of constant thickness, and are homogeneous and isotropic. Pump tests also ideally utilize wells that are screened throughout the thickness of the aquifer, and nearby observation wells that are also screened completely across the aquifer, or at least screened in the center of the aquifer.

Although techniques have been developed that deal with some departure from the simplified assumptions described above, no analytical technique fully addresses a system as complex as that at Beale AFB, where "aquifers" consist of thin discontinuous units contained in a complex assemblage of

alluvium. In addition, wells were installed primarily as monitoring wells, and are usually screened across the uppermost permeable unit(s) encountered during drilling. Thus, wells may be said to only partially penetrate the aquifer, if the aquifer is considered to comprise the entire assemblage of unconsolidated sediments, or in some cases to penetrate more than one aquifer, if the aquifer is considered to consist of each thin discontinuous permeable unit in the assemblage. Nearby monitoring wells used as observation wells may or may not have been screened in the same thin permeable unit.

In this situation, it was decided to employ standard methods of pump test analysis, while recognizing that results are only estimates. The method most often employed was the Cooper-Jacob semilog plot method (Cooper and Jacob, 1946), which is an approximation of the Theis solution. Aquifer thickness, used in the calculation of hydraulic conductivity, was assumed to consist of the saturated portion of the well screen, except in analyses of wells 1-C-2, 1-C-3, 1-C-4, and 1-C-5, where uniform geology was found to a depth of about 45-47 feet below the water table. It was considered unnecessary to correct for partial penetration, since this correction is normally made to account for vertical flow components in the groundwater. Geologic stratification tended to counteract vertical flow in the short-term tests at Beale AFB.

Two wells were given step-drawdown tests, according to a technique developed by Harrill (1970). Three wells were given slug tests, because permeabilities were too low to sustain a constant pumping rate. Results were evaluated according to the Bouwer and Rice method (1976).

Curve-matching techniques were not used, because these analyses depend on proper selection of curves based on clear understanding of subsurface geology, not possible at Beale AFB. The fact that a theoretical curve can be matched by pumping test data in no way proves that the aquifer fits the assumptions on which the curve is based (Freeze and Cherry, 1979).

The Cooper-Jacob semilog plot method provides a snapshot of geologic conditions in the vicinity of the well by showing boundary conditions encountered by the cone of depression on the drawdown curve. For example, nearby units of lower permeability cause the curve to steepen, while units of higher permeability cause the curve to flatten. Curves provided in this appendix clearly show these slope changes, and are

reflective of the heterogeneity of the nearby subsurface geology, and do not represent large-scale regional boundaries that would affect regional groundwater velocities or flow paths.

Portions of the curves used to calculate aquifer parameters depended on judgement. Factors included the desire to use late portions of the curve where possible, portions of longest time duration, or in certain cases the shallow rather than steep portion of the drawdown curve to derive conservatively high values of hydraulic conductivity. In these latter cases, the shallow portion of the curve closely matched the recovery curve and reflected hydrogeologic conditions near the well. In addition, groundwater flows preferentially through zones of higher permeability.

Short-term pump test results are indicative of hydrogeologic conditions in the immediate vicinity of the well screen, and are useful as estimates of yield for sampling purposes. Aquifer parameters such as hydraulic conductivity and transmissivity must be regarded as estimates, and are mainly valid only in the immediate vicinity of the well. Drawdown and recovery curves developed on nearby observation wells are primarily useful in demonstrating whether hydraulic communication occurs between the observation well and the pumping well. Because the geologic relationship of these wells to the pumping well is often unclear, and because of the short-term nature of the tests and often great distance of the observation well from the pumping well, aquifer parameters developed from these curves are even less rigorous than those developed from the pumping well. This includes values of storage coefficient developed from plots of observation well water level changes.

The test that most accurately portrays subsurface groundwater conditions at Beale AFB was the 72-hour test performed at well 19-C-4, which tended to average out local heterogeneities. Estimates of groundwater flow velocity presented in this report were made using the value of hydraulic conductivity derived from this test. However, plots of drawdown and recovery recorded on observation wells during this test should be viewed with caution.

This appendix first describes the testing methodology employed for the 72-hour test, then describes the various methods used to derive aquifer parameters at the monitoring wells. Finally, plots of drawdown and recovery are presented for each test. Included among the plots are background water level fluctuations and barometric pressure variations

which were collected in conjunction with the long-term test at Site 19. Table E-1 summarizes the results of the aquifer testing program at Beale AFB.

72-HOUR TEST

The long-term pump test consisted of 72 hours of drawdown followed by 72 hours of recovery. Well 19-C-4 was the pumping well, and wells 19-C-1, 19-C-2, and 19-C-3 were observation wells. Water levels in 19-C-1 were measured with a calibrated electric sounder. Water levels in the other wells were monitored automatically with In-Situ Hermit dataloggers and pressure transducers. Data were transferred directly to a portable computer in the field. Well 19-C-4 was pumped with a 5-horsepower Grundfos stainless-steel submersible pump powered by a portable generator. Water was discharged to the sump located south of Building 2145, from which it flowed to the photowaste treatment plant. Discharge was measured every 3 hours with a calibrated bucket and stopwatch, and varied little from an average of 22.8 gallons per minute (gpm) during the drawdown portion of the test.

Water levels were measured during the test in well 6-C-1 to provide data on background groundwater fluctuations in a well unaffected by the test. In addition, water levels in wells 6-C-1, 19-C-2, and 19-C-3 were monitored over a 5-day period after the test. These data were then compared with barometric pressure data collected hourly at the Beale AFB weather station.

Plots of the groundwater and barometric pressure variations are included in this appendix. They demonstrate that water levels in wells 6-C-1, 19-C-2, and 19-C-3 vary directly with barometric pressure and with each other during March 23-28, 1989. Water levels in well 6-C-1 also varied with barometric pressure during the drawdown and recovery phases of the pump test (March 16-22, 1989). Based on these relationships, data collected in the pumping and observation wells were modified to reflect the impact of barometric pressure changes during the pump test.

Aquifer parameters were calculated from the modified data according to the Cooper-Jacob semilog plot method (Cooper and Jacob, 1946). In the semilog plot technique, drawdown is plotted on the arithmetic axis against pumping time on the logarithmic axis. In the recovery test, residual drawdown is plotted against the ratio of elapsed time since the

Table E-1
RESULTS OF AQUIFER TESTING AT BEALE AFB

WELL	DATE	METHOD	PUMPING (P) OR OBSERVATION (O)	DRAWDOWN (DD) OR RECOVERY (R)	DURATION (HOURS)	TRANSMISSIVITY T (sq.ft./d)	HYDRAULIC CONDUCTIVITY K (ft/d)
1-C-1	01/26/89	(1) CJ	P	DD	2	4,400	350
1-C-1	01/26/89	CJ	P	R	2	4,200	340
1-C-3	02/07/89	CJ	P	DD	8	9,200	200
1-C-3	02/07/89	CJ	P	R	8	9,800	210
1-C-4	02/09/89	CJ	P	DD	12	13,000	280
1-C-4	02/09/89	CJ	P	R	12	18,000	380
1-A-1	02/09/89	CJ	O	DD	12	6,200	140
1-C-1	02/09/89	CJ	O	DD	12	6,000	130
1-C-2	02/09/89	CJ	O	DD	12	22,000	480
1-C-2	02/09/89	CJ	G	R	12	22,000	480
1-C-3	02/09/89	CJ	O	DD	12	26,000	560
1-C-3	02/09/89	CJ	O	R	12	23,000	500
1-C-5	03/06/89	(2) H	P	(3) Step DD	4	11,000	240
1-C-2	03/07/89	CJ	P	DD	4	17,000	370
1-C-2	03/07/89	CJ	P	R	4	16,000	350
1-C-4	03/07/89	CJ	O	DD	4	16,000	330
1-C-4	03/07/89	CJ	O	R	4	14,000	300
1-C-5	03/07/89	CJ	O	DD	4	18,000	390
1-C-5	03/07/89	CJ	O	R	4	18,000	390

Table E-1
(Continued)

WELL	DATE	METHOD	PUMPING (P) OR OBSERVATION (O)	DRAWDOWN (DD) OR RECOVERY (R)	DURATION (HOURS)	TRANSMISSIVITY T (sq. ft/d)	HYDRAULIC CONDUCTIVITY K (ft/d)
1-C-1	02/02/89	CJ	P	DD	4	1,000	52
2-C-1	02/02/89	CJ	P	R	4	1,000	52
3-C-1	03/10/89	CJ	P	DD	3.5	320	23
3-C-1	03/10/89	CJ	P	R	3.5	290	21
5-C-1	03/03/89	CJ	P	DD	4	500	29
5-C-1	03/03/89	CJ	P	R	4	1,000	59
6-C-1	02/01/89	CJ	P	DD	1	3.4	0.17
6-C-1	02/01/89	CJ	P	R	1	4.6	0.23
13-C-5	02/03/89	CJ	P	DD	4	380	19
13-C-5	02/03/89	CJ	P	R	4	380	19
13-C-4	02/15/89	CJ	P	DD	4	250	13
13-C-4	02/15/89	CJ	P	R	4	390	21
13-A-2	02/15/89	CJ	O	DD	4	1,100	74
13-A-2	02/15/89	CJ	O	R	4	1,200	63
13-C-3	02/16/89	CJ	P	DD	12	390	19
13-C-3	02/17/89	CJ	P	R	12	450	23
13-C-1	02/16/89	CJ	O	DD	12	780	39
13-A-2	02/16/89	CJ	O	DD	12	570	39

Table E-1
(Continued)

WELL	DATE	METHOD	PUMPING (P) OR OBSERVATION (O)	DRAWDOWN (DD) OR RECOVERY (R)	DURATION (HOURS)	TRANSMISSIVITY T (sq. ft/d)	HYDRAULIC CONDUCTIVITY K (ft/d)
13-A-2	02/17/89	CJ	O	R	12	540	37
13-C-4	02/16/89	CJ	O	DD	12	990	53
13-C-5	02/16/89	CJ	O	DD	12	1,100	57
13-C-2	02/21/89	CJ	P	DD	6	380	19
13-C-2	02/21/89	CJ	P	R	6	440	22
13-C-1	02/24/89	CJ	P	DD	1.7	270	13.5
13-C-1	02/24/89	CJ	P	R	1.7	230	11
13-C-4	09/22/89	CJ	P	DD	3	78	4.9
13-C-6	09/22/89	CJ	P	R	3	280	18
16-C-1	01/31/89	BR ⁽⁴⁾	N/A	N/A	1	23	1.2
18-C-1	02/13/89	CJ	P	DD	6	320	23
18-C-1	02/13/89	CJ	P	R	6	270	19
18-C-2	02/10/89	CJ	P	DD	4	230	24
18-C-2	02/10/89	CJ	P	R	4	330	34
19-C-4	03/16/89 - 03/19/89	CJ	P	DD	72	1,300	22
19-C-4	03/19/89 - 03/22/89	CJ	P	R	72	2,000	34
19-C-1	03/16/89 - 03/19/89	CJ	O	DD	72	4,000	67
19-C-1	03/19/89 - 03/22/89	CJ	O	R	72	4,000	67

Table E-1
(Continued)

WELL	DATE	METHOD	PUMPING (P) OR OBSERVATION (O)	DRAWDOWN (DD) OR RECOVERY (R)	DURATION (HOURS)	TRANSMISSIVITY T (sq. ft/d)	CONDUCTIVITY K (ft/d)
19-C-2	03/16/89 - 03/19/89	CJ	O	DD	72	3,400	56
19-C-2	03/19/89 - 03/22/89	CJ	O	R	72	3,000	50
19-C-3	03/16/89 - 03/19/89	CJ	O	DD	72	3,100	52
19-C-3	03/19/89 - 03/22/89	CJ	O	R	72	2,500	42
19-C-1	02/22/89	CJ	P	DD	3	1,100	55
19-C-1	02/22/89	CJ	P	R	3	735	37
19-C-2	02/27/89	CJ	P	DD	4	100	5.3
19-C-2	02/27/89	CJ	P	R	4	81	4.3
19-C-3	02/27/89	CJ	O	DD	4	370	18
19-C-3	03/01/89	CJ	P	DD	8	200	10
19-C-3	03/01/89	CJ	P	R	8	190	9.7
19-C-2	03/01/89	CJ	O	DD	8	190	10
21-C-1	03/09/89	H	P	Step DD	4	750	7
23-C-1	03/29/89	BR	N/A	N/A	1	33	1.9
BQ-C-1	02/01/89	BR	N/A	N/A	1	73	5.1
BQ-C-2	01/30/89	CJ	P	DD	2.6	1,100	69
BQ-C-2	01/30/89	CJ	P	R	2.6	1,000	66

NOTES:
(1) Cooper-Jacob (1946)
(2) Harill (1970)
(3) Recovery of Step-Drawdown Test
(4) Bouwer and Rice (1976)

pump was turned on divided by the elapsed time since the pump was turned off (t/t') on the logarithmic axis. A "best-fit" line is then drawn on the plotted data points.

Transmissivity is calculated according to the following formula:

$$T = (264)(Q) / (h-h_0)$$

where:

T = Transmissivity of the aquifer in gallons/day/foot (gpd/ft)

264 = A conversion factor that causes the results to be in gallons/day/foot

Q = Pumping rate in gallons/minute (gpm)

$h-h_0$ = Change in drawdown (or residual drawdown) in feet/log cycle of time on the graphical plot

Hydraulic conductivity is calculated by:

$$K = T/b$$

where:

K = Hydraulic conductivity in feet/day (ft/d)

b = Thickness of the aquifer, here taken to be the saturated thickness of the screened interval of the well (ft)

The storage coefficient may only be determined on drawdown data recorded in an observation well. The storage coefficient is calculated by substitution into the following formula:

$$S = (2.25)(T)(t_0)/(r^2)$$

where:

S = Storage coefficient (dimensionless)

T = Transmissivity in ft^2/min

t_0 = Time at which the "best-fit" line crosses the x-axis (min)

r = Distance from the observation well to the pumping well (feet)

Calculations of transmissivity, hydraulic conductivity, and storage coefficient are included on the test plots in this appendix. Summaries of these values are included with the IRP site discussions in Section 4.

SHORT-TERM TESTS

Most of the newly-installed monitoring wells at Beale AFB were tested according to the Cooper-Jacob technique described above. The normal length of time each well was tested was about 4 hours for the pump drawdown test, followed by 4 hours of monitored recovery. However, at Sites 1 and 13, 12-hour pump drawdown and 12-hour recovery tests were conducted. Certain other wells were given tests of varying lengths also. The duration of the test at each well is shown on the test plots in this appendix and in Table E-1. Where possible, nearby wells were utilized as observation wells. As with the 72-hour test, water levels were monitored automatically with In-Situ Hermit dataloggers and pressure transducers. Data were transferred directly to a portable computer in the field. Water discharged from the wells was stored in either a portable tank or a water tank truck in the field, then transferred to the sewage treatment facility at Beale AFB for disposal.

Wells 1-C-5 and 21-C-1 were given a 4-hour step-drawdown test. In this test, the pumping rate is stepped upward at regular intervals. At the conclusion of the pumping period, the pump is turned off and the rate of rise of water in the well is measured. Transmissivity is calculated according to a technique developed by Harrill (1970), using a modified form of the Theis recovery formula.

Transmissivity is calculated according to the following formula:

$$T = (264)(Q_p)/(h-h_0)$$

where:

T = Transmissivity of the aquifer in gpd/ft

264 = A conversion factor that causes the results to be in gpd/ft

Q_n = The final pumping rate in gpm

$h-h_o$ = Change in residual drawdown in feet/log cycle of time

Hydraulic conductivity is calculated by:

$$K = T/b$$

where:

K = Hydraulic conductivity (ft/day)

b = Aquifer thickness (ft)

The term $h-h_o$ is obtained from a semilog graphical plot, where the residual drawdown is plotted on the linear scale against the following which is plotted on the logarithmic scale (referred to as modified ratio t/t'):

$$t_1^{(\text{delta } Q_1/Q_n)} t_2^{(\text{delta } Q_2/Q_n)} t_n^{(\text{delta } Q_n/Q_n)} / t'$$

where:

$t_1, t_2, \dots t_n$ = Elapsed times since the pump was turned on or discharge increased

t' = Elapsed time since the pump was turned off

$Q_1, Q_2, \dots Q_n$ = Well discharge rates (gpm)

$\text{delta } Q_1, \text{delta } Q_2, \dots \text{delta } Q_n$ = incremental increases in discharge

For example, in the test of well 1-C-5:

$Q_1 = 37$ gpm; $\text{delta } Q_1 = 37$ gpm

$Q_2 = 43$ gpm; $\text{delta } Q_2 = 6$ gpm

$Q_3 = 49$ gpm; $\text{delta } Q_3 = 6$ gpm

$Q_4 = Q_n = 56$ gpm; $\text{delta } Q_4 = 7$ gpm

$\text{delta } Q_1/Q_n = 0.66$

$\text{delta } Q_2/Q_n = 0.11$

$$\Delta Q_i/Q_n = 0.11$$

$$\Delta Q_i/Q_n = 0.13$$

Residual drawdown (feet) is calculated as the difference between recovering water levels and the static (initial) water level. The plots of these tests and calculations of transmissivity and hydraulic conductivity are provided in this appendix.

Wells 16-C-1, 23-C-1 and BG-C-1 were each given slug tests, because the permeabilities of the aquifer materials in which these wells are completed and the available drawdown were too low to sustain a pumping test. Results were interpreted according to the method devised by Bouwer and Rice (1976), which was designed for partially penetrating wells in unconfined aquifers. The test involves the sudden addition of a volume of water to the well, then measuring the rate of decline of the water level in the well as it returns to the static level. The water levels were measured with a pressure transducer and recorded on a datalogger. Hydraulic conductivity is calculated according to the following equation:

$$K = r_c^2 \ln(R/r_w) \ln(Y_0/Y_i) / (2Lt)$$

where:

K = Hydraulic conductivity (L/T)

L = Saturated length of the screen (L)

r_w = Distance from the center of the casing to the undisturbed aquifer

r_c = Inside radius of the casing, with allowance made for the porosity of the filter pack. r_c is calculated as:

$$r_c = [i^2 + n(r_w^2 - i^2)]^{1/2}$$

where:

i = Inside casing radius (L)

n = Porosity of filter pack (assumed to be 0.30)

The terms " Y_0 ", " Y_c ", and " t " are derived from a plot of residual recovery, or the difference between the original water level and water levels after the slug is added, versus the time at which water level measurements are made. A straight line is fitted to the slope of the early portion of the resulting curve. Where this line crosses the y-axis at time = 0, the value " Y_0 " is obtained. Another value of Y , " Y_c ", is chosen along the straight line at an arbitrarily chosen time, t .

Finally,

$$\ln (R/r_w) = [(1.1/\ln[H/r_w]) + \{A + B \ln(D - H/r_w)\} / \{L/r_w\}]^{-1}$$

where:

D = Depth from the original water level to the bottom of the aquifer

H = Depth from the original water level to the bottom of the well

A and B = Dimensionless parameters taken from a graph included in the original paper

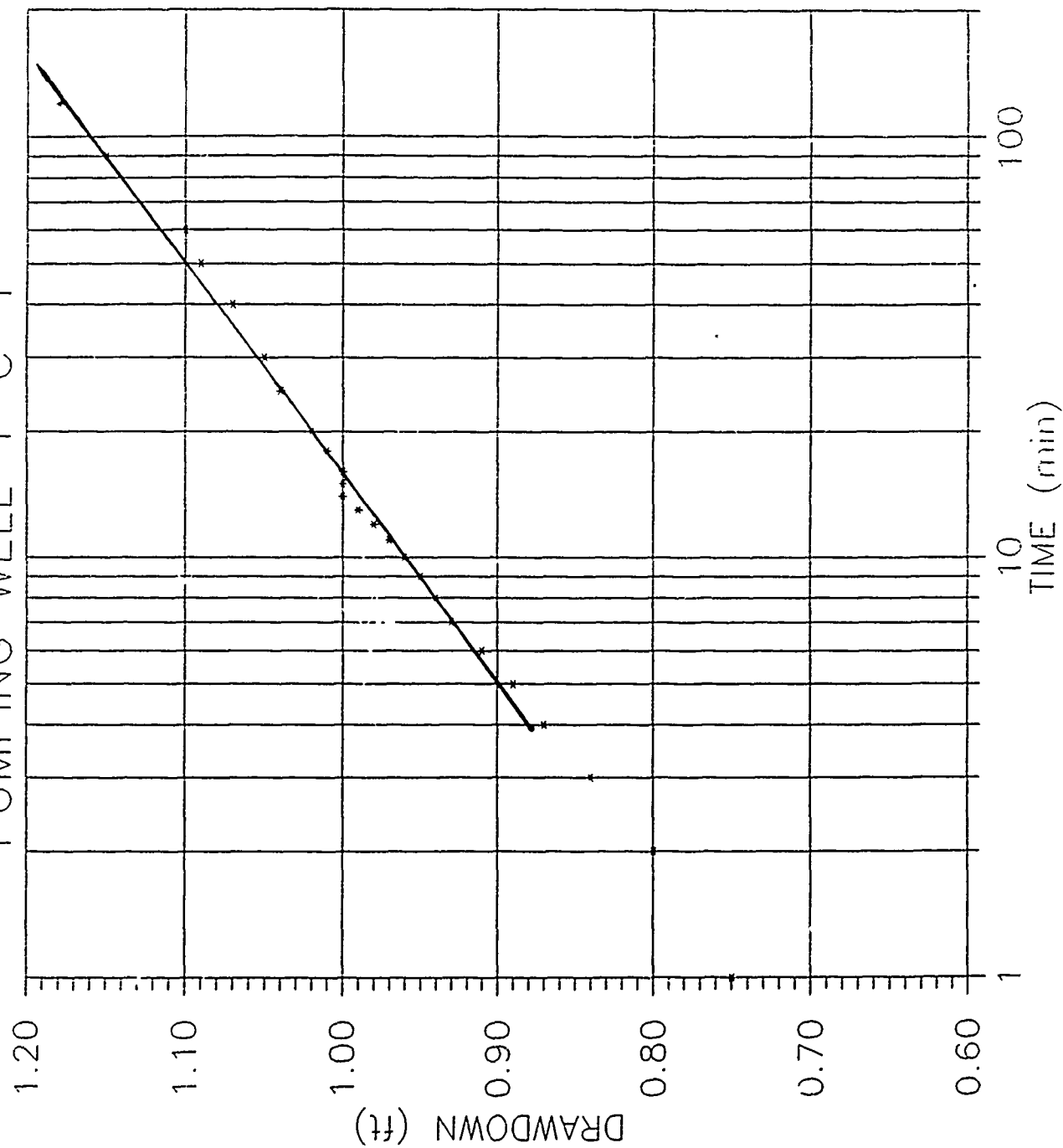
The plots of residual recovery versus time in the wells that were given slug tests are included in this appendix, together with the results.

SITE 1

WEST DRAINAGE DITCH

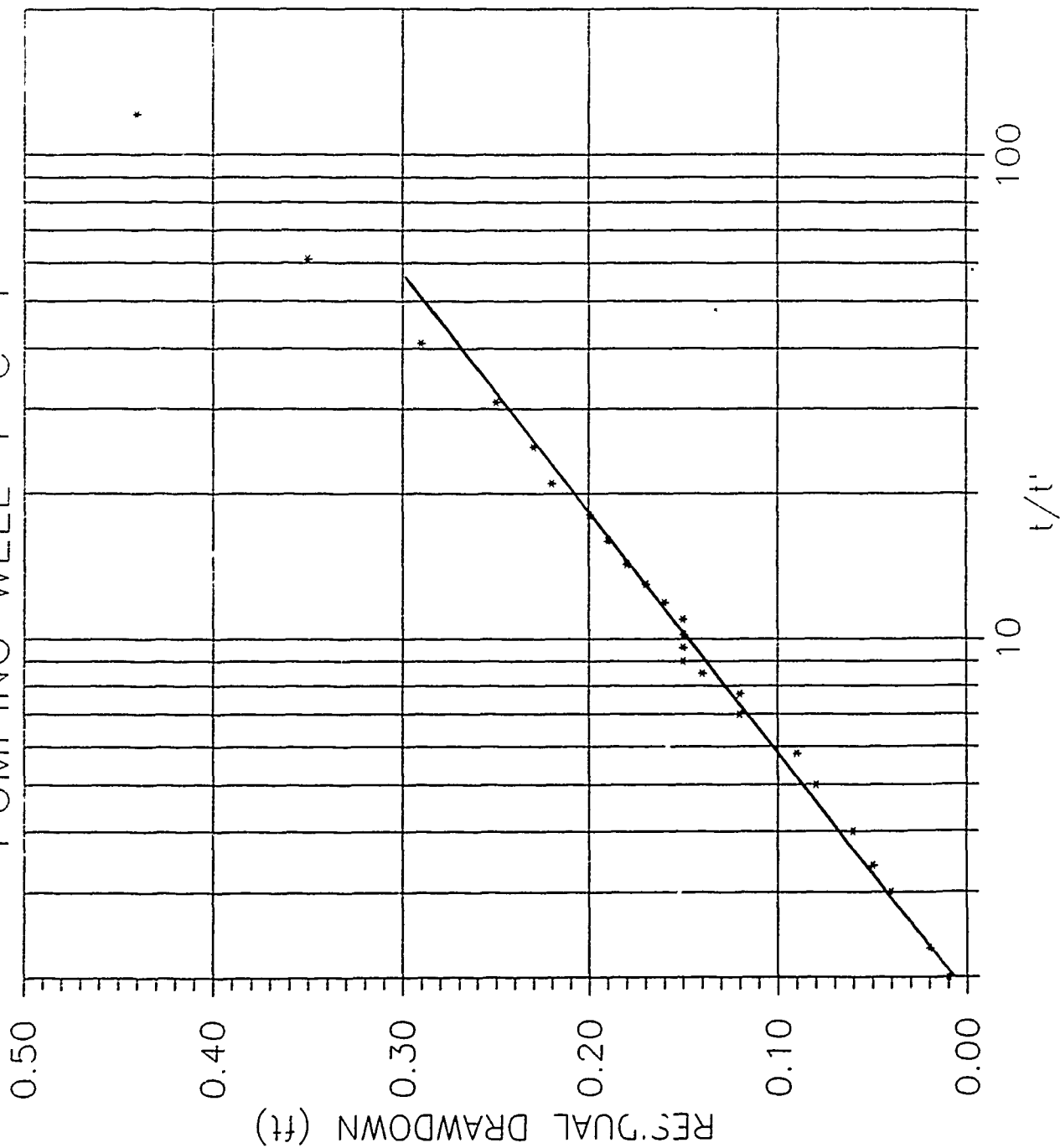
Pump Test Plots

PUMP DRAWDOWN TEST: 1/26/89 PUMPING WELL 1-C-1



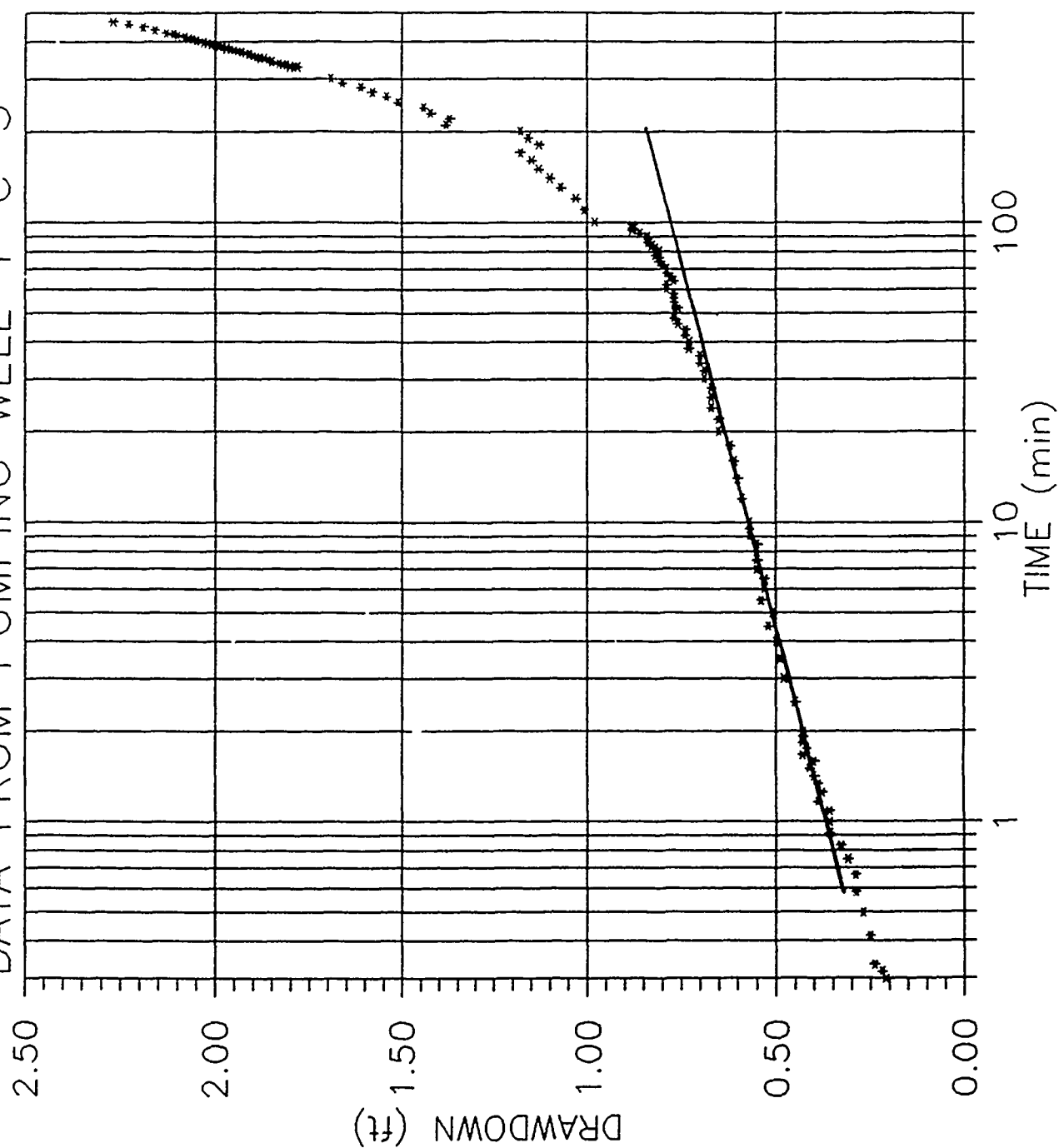
$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(23.6 \text{ gpm})/(0.19 \text{ ft}) \\
 &= 33,000 \text{ gpd/ft} \\
 &= 4,400 \text{ ft/d} \\
 K &= T/b \\
 &= (4,400 \text{ ft}^2/\text{d})/(12.4 \text{ ft}) \\
 &= 350 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 1/26/89 PUMPING WELL 1-C-1



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(23.6 \text{ gpm})/(0.20 \text{ ft}) \\
 &= 31,000 \text{ gpd/ft} \\
 &= 4,200 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (4,200 \text{ ft}^2/\text{d})/(12.4 \text{ ft}) \\
 &= 340 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/7/89 DATA FROM PUMPING WELL 1-C-3



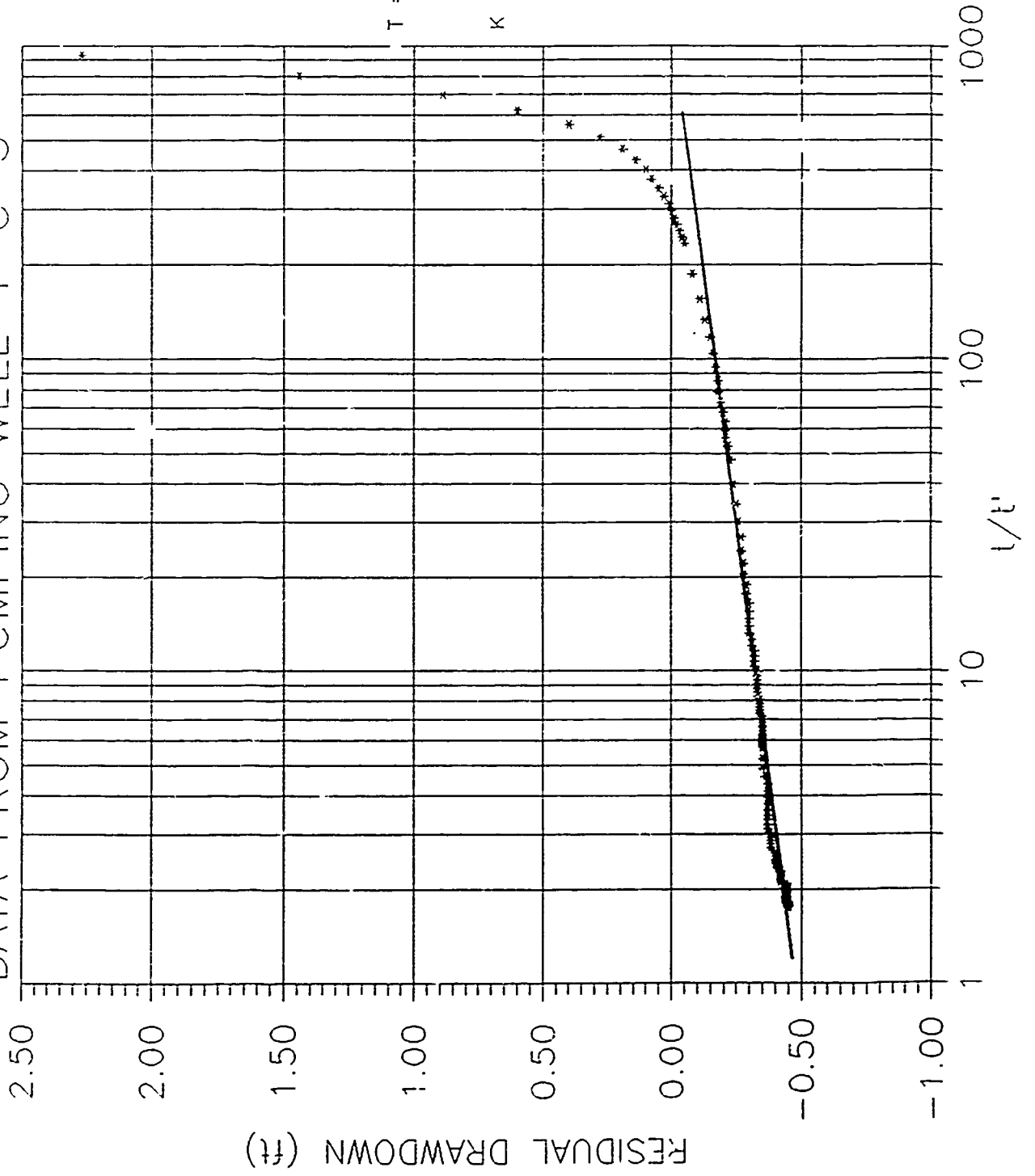
$$T = \frac{(264)(Q)/(\Delta S)}{(264)(47 \text{ gpm})/(0.18 \text{ ft})}$$

$$= \frac{69,000 \text{ gpd/ft}}{9,200 \text{ ft}^2/\text{d}}$$

$$K = \frac{T/b}{(9,200 \text{ ft}^2/\text{d})/(46 \text{ ft})}$$

$$= \frac{200 \text{ ft/d}}{200 \text{ ft/d}}$$

PUMP RECOVERY TEST: 2/7/89 DATA FROM PUMPING WELL 1-C-3



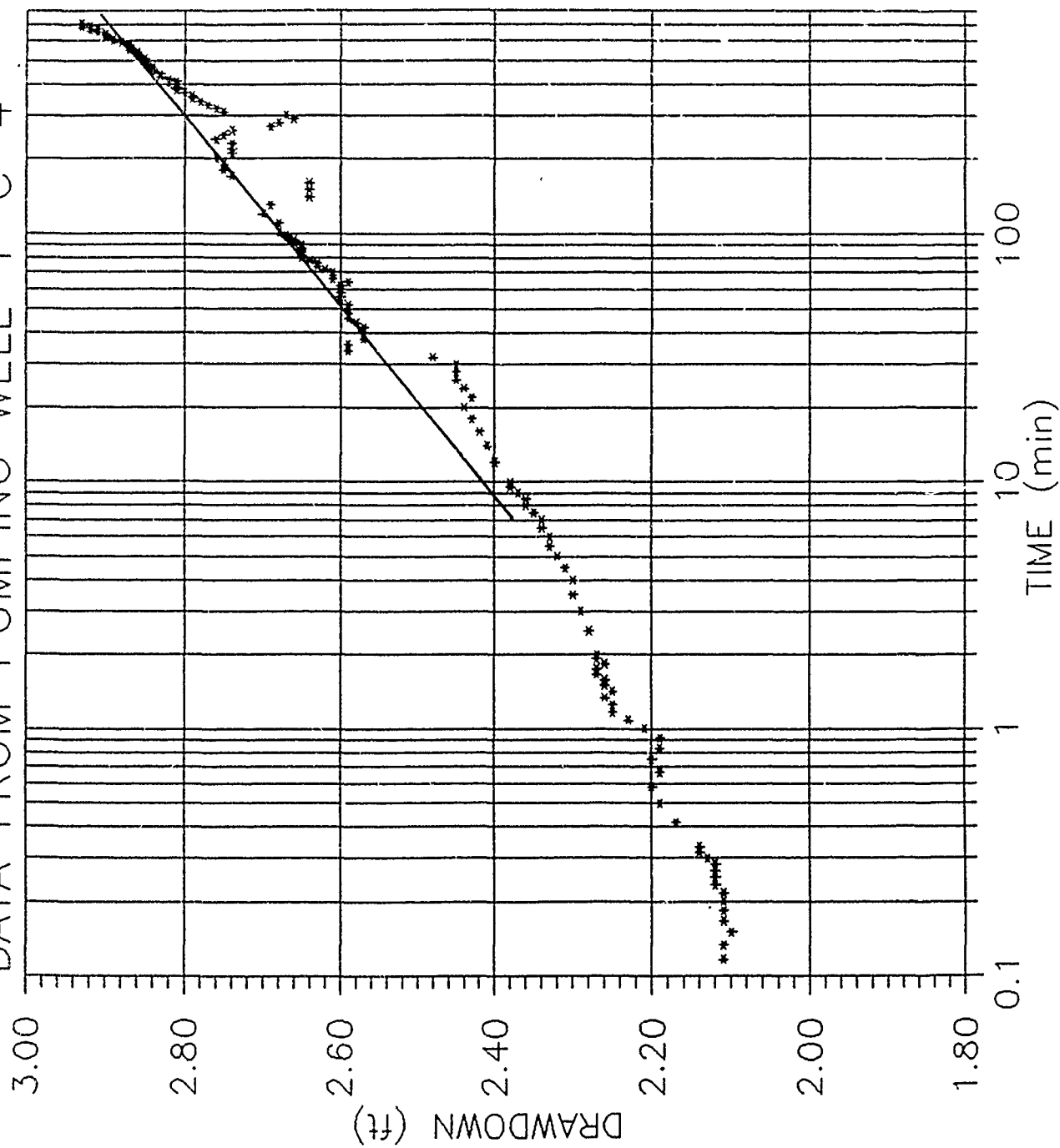
$$T = \frac{(264)(Q)(\Delta S)}{(264)(47 \text{ gpm})/(0.17 \text{ ft})}$$

$$= \frac{73,000 \text{ gpd/ft}}{9,800 \text{ ft}^2/\text{d}}$$

$$K = \frac{T/b}{(9,800 \text{ ft}^2/\text{d})/(46 \text{ ft})}$$

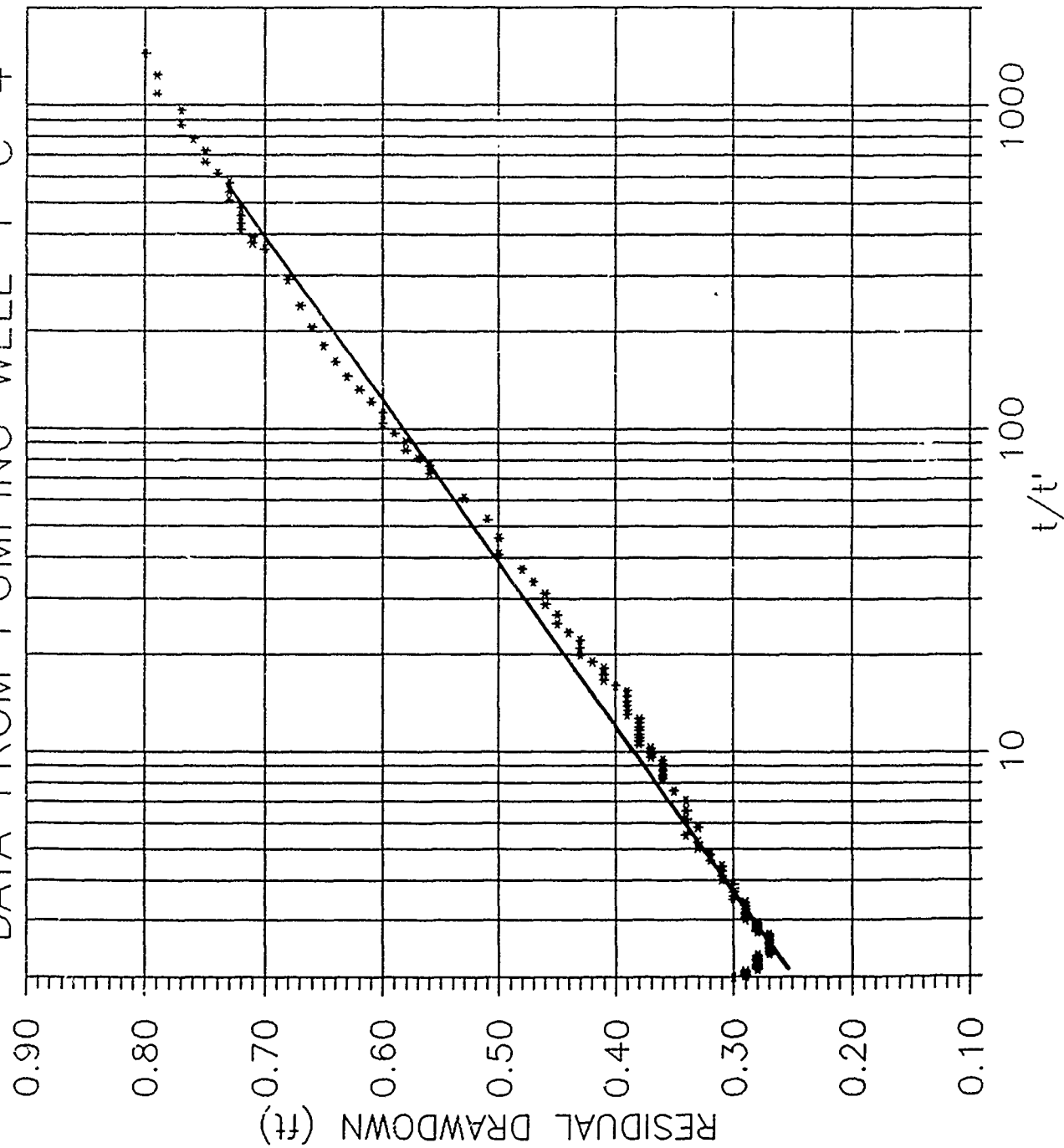
$$= \frac{210 \text{ ft/d}}{210 \text{ ft/d}}$$

PUMP DRAWDOWN TEST: 2/9/89 DATA FROM PUMPING WELL 1-C-4



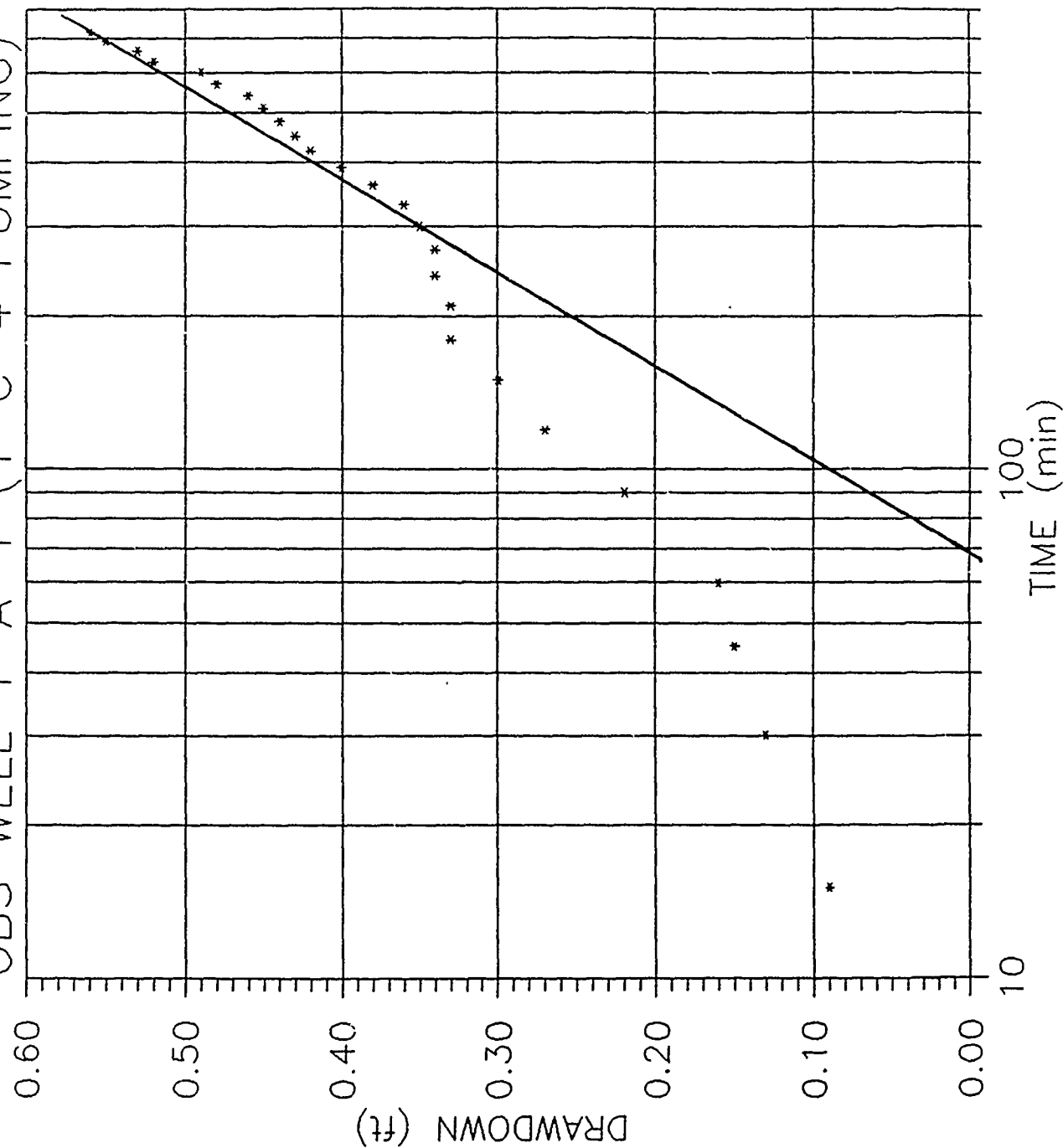
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(94.3 \text{ gpm})(0.26 \text{ ft})}{96,000 \text{ gpd/ft}} \\
 &= 13,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(13,000 \text{ ft}^2/\text{d})}{(46 \text{ ft})} \\
 &= 280 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/9/89 DATA FROM PUMPING WELL 1-C-4



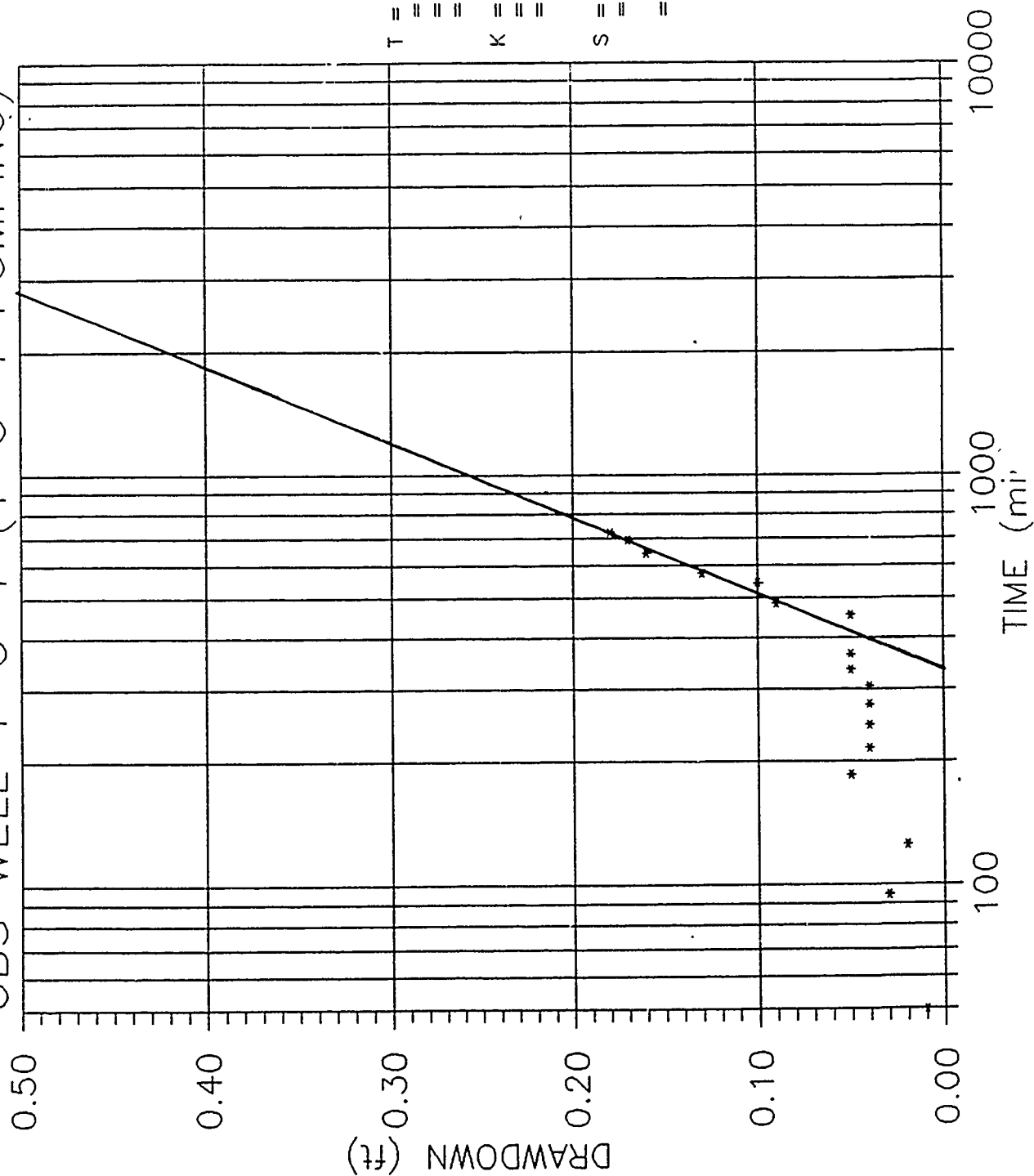
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(94.3 \text{ gpm})(0.19 \text{ ft})}{130,000 \text{ gpd/ft}} \\
 &= 18,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{18,000 \text{ ft}^2/\text{d}}{(46 \text{ ft})} \\
 &= 380 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/9/89 OBS WELL 1-A-1 (1-C-4 PUMPING)



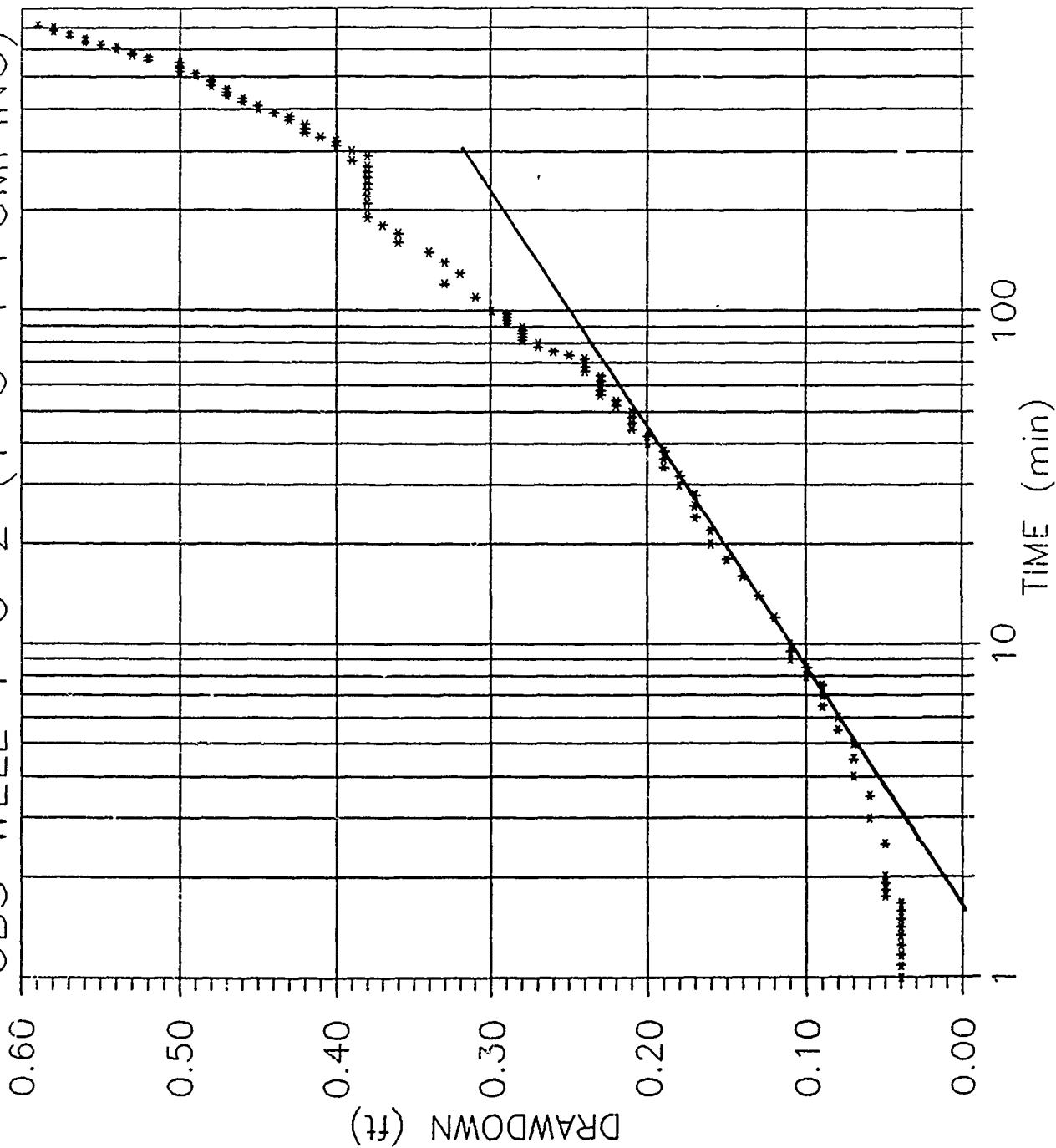
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(94.3 \text{ gpm})(0.535 \text{ ft})} \\
 &= \frac{47,000 \text{ gpd/ft}}{6,200 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(6,200 \text{ ft}^2/\text{d})}{(48 \text{ ft})} \\
 S &= \frac{(2.25)(T)(t_0)/(r^2)}{(2.25)(4.3 \text{ ft}^2/\text{min})(66 \text{ min})} \\
 &= \frac{(96.8 \text{ ft})}{6.8 \times 10^{-2}}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/9/89 OBS WELL 1-C-1 (1-C-4 PUMPING)



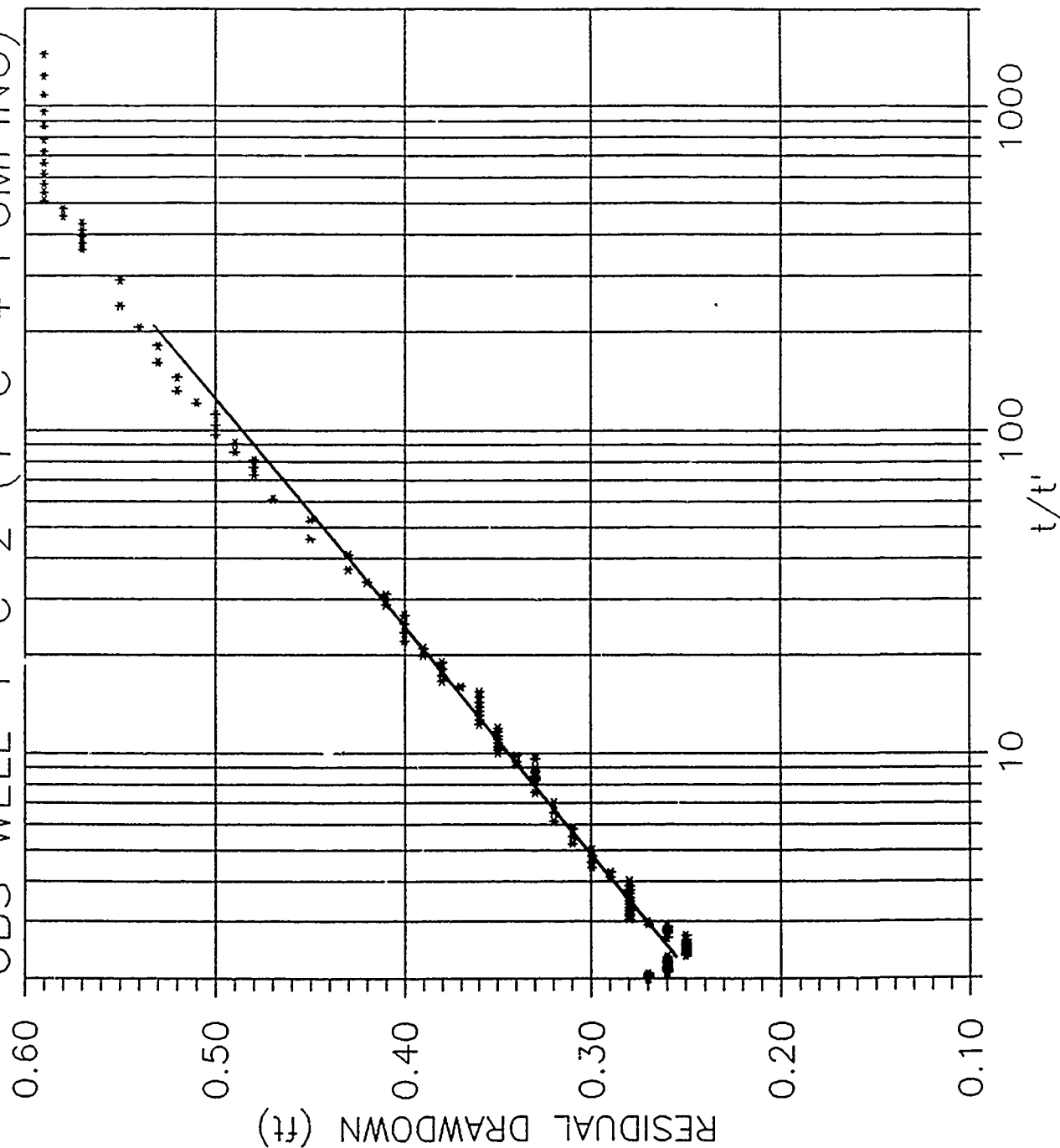
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(45,000)(\Delta S)} \\
 &= \frac{(264)(94.3 \text{ gpm})}{(45,000)(0.555 \text{ ft})} \\
 &= \frac{45,000 \text{ gpd/ft}}{6,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(6,000 \text{ ft}^2/\text{d})}{(46 \text{ ft})} \\
 &= 130 \text{ ft/d} \\
 S &= \frac{(2.25)(T)(t_0)}{(419.7)(r^2)} \\
 &= \frac{(2.25)(4.2 \text{ min})(330 \text{ min})}{(419.7)(1.8 \times 10^{-2})} \\
 &= 1.8 \times 10^{-2}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/9/89 OBS WELL 1-C-2 (1-C-4 PUMPING)



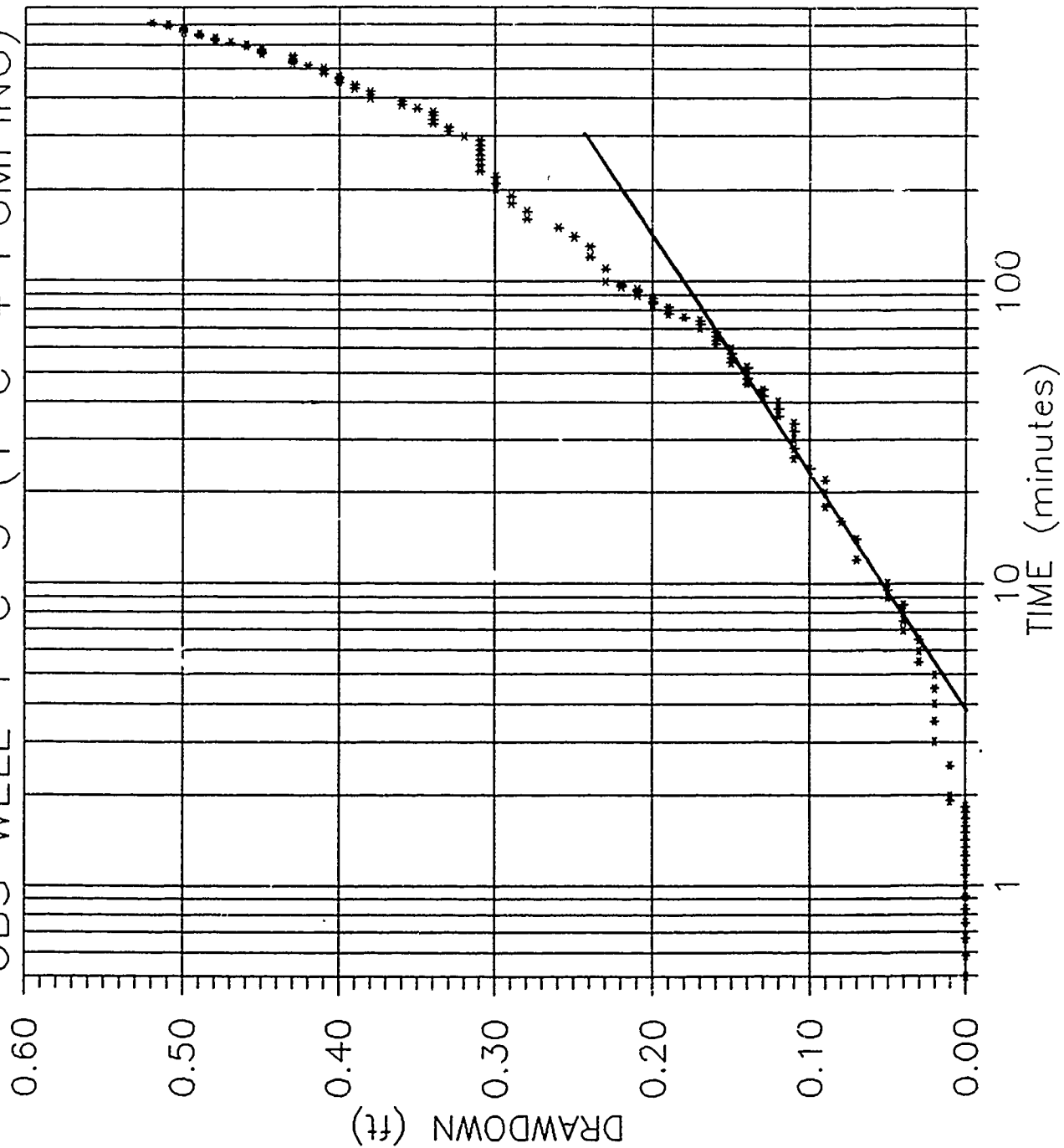
$T = \frac{(264)(Q)}{(264)(94.3 \text{ gpm})(0.15 \text{ ft})}$
 $= \frac{170,000 \text{ gpd/ft}}{22,000 \text{ ft}^2/\text{d}}$
 $K = \frac{T/b}{(22,000 \text{ ft}^2/\text{d})/(46 \text{ ft})}$
 $= \frac{480 \text{ ft/d}}{(2.25)(T)(t_0)/(r^2)}$
 $S = \frac{(2.25)(15 \text{ ft min})(2 \text{ min})}{(86.7 \text{ ft})}$
 $= 9.2 \times 10^{-3}$

PUMP RECOVERY TEST: 2/9/89 OBS WELL 1-C-2 (1-C-4 PUMPING)



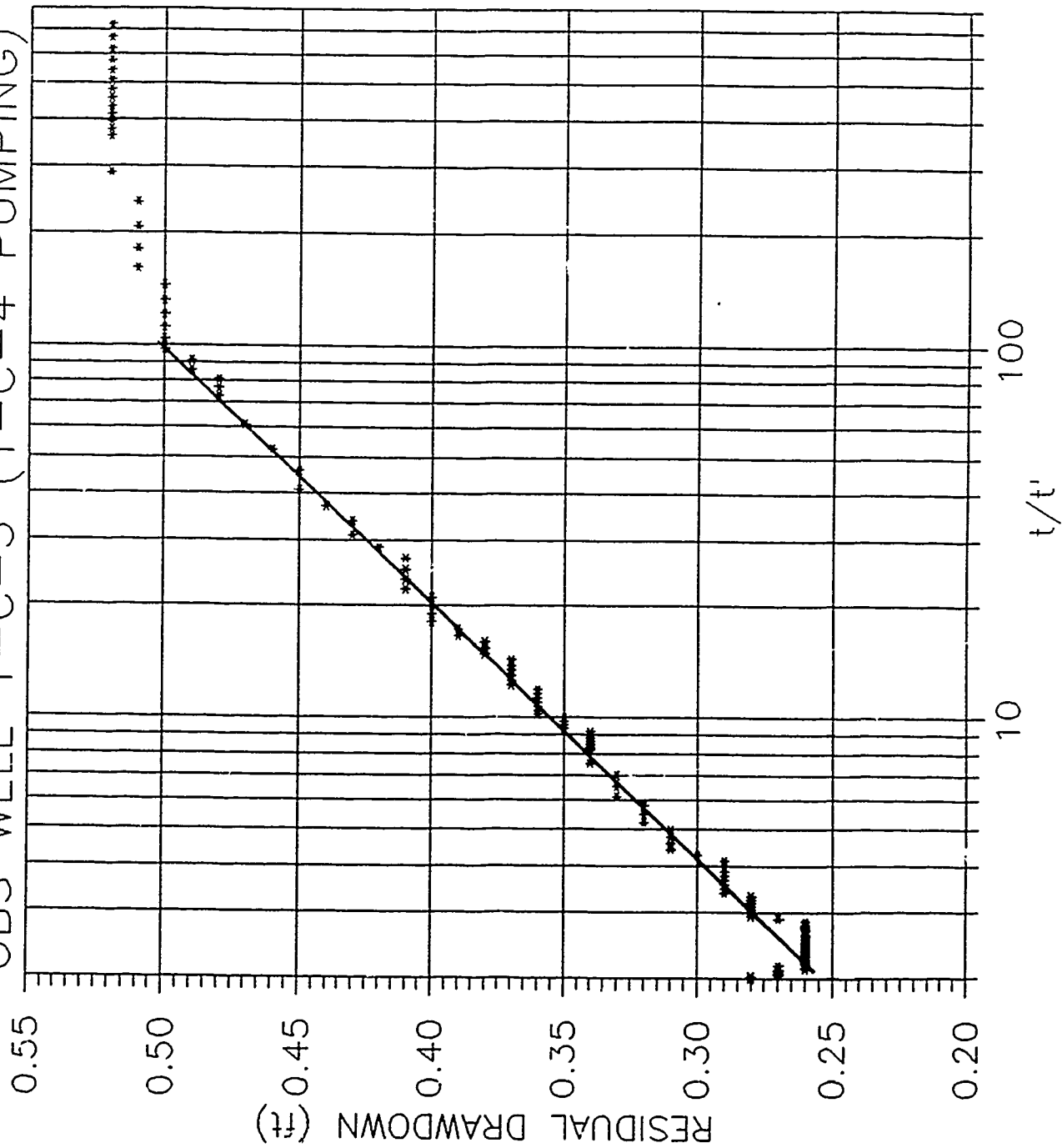
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(94.3 \text{ gpm})(0.15 \text{ ft})}{170,000 \text{ gpd/ft}} \\
 &= 22,000 \text{ ft/d} \\
 K &= \frac{T}{b} \\
 &= \frac{22,000 \text{ ft/d}}{46 \text{ ft}} \\
 &= 480 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/9/89 OBS WELL 1-C-3 (1-C-4 PUMPING)



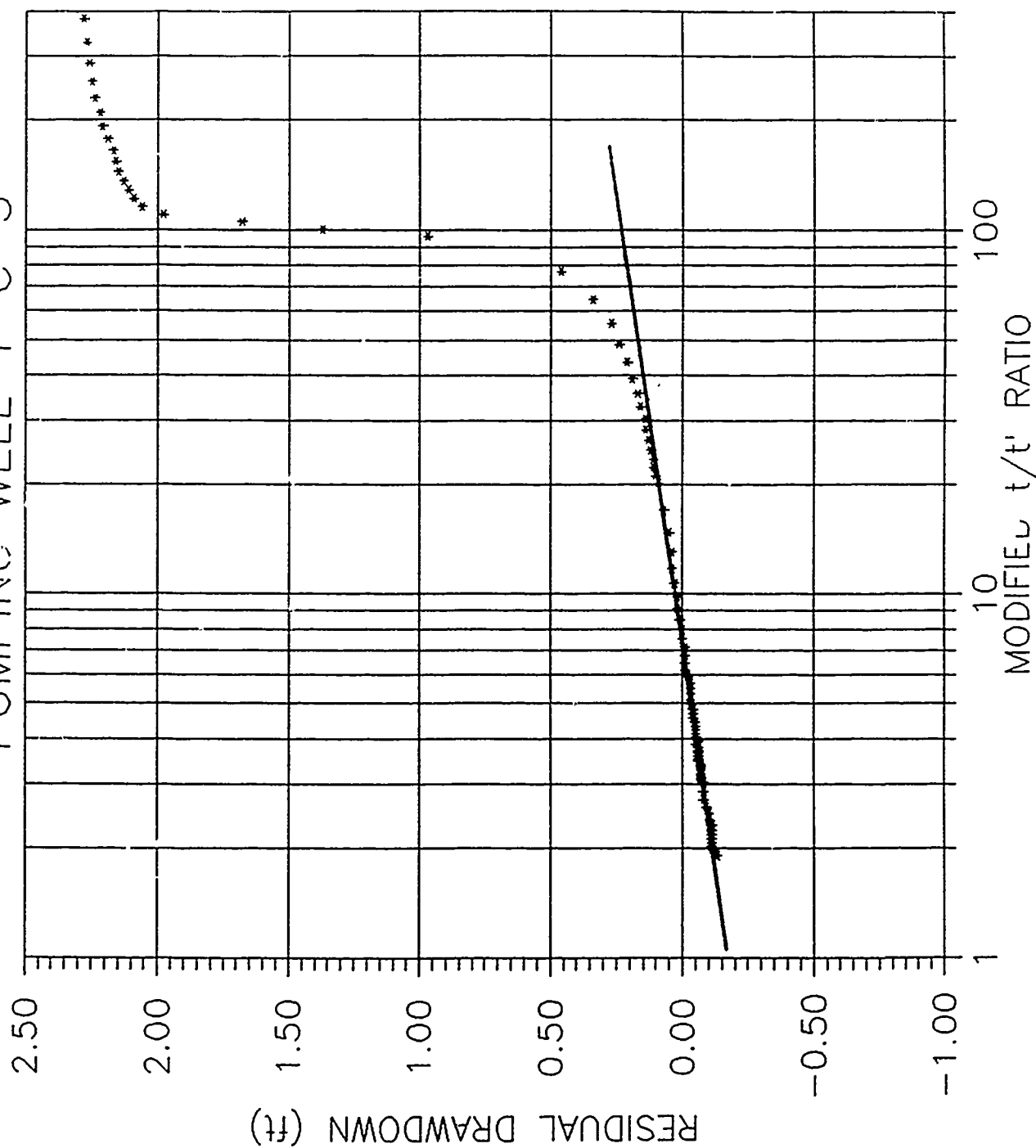
$$\begin{aligned}
 T &= \frac{(264)(Q)(\mu)}{(4S)} \\
 &= \frac{(264)(94.3 \text{ gpm})(0.13 \text{ ft})}{190,000 \text{ gpd/ft}} \\
 &= 26,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{26,000 \text{ ft}^2/\text{d}}{560 \text{ ft}} \\
 S &= \frac{(2.25)(T)(t_w)}{(r^2)} \\
 &= \frac{(2.25)(18 \text{ ft}^2/\text{min})(4 \text{ min})}{(93.9 \text{ ft})^2} \\
 &= 1.8 \times 10^{-2}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/9/89 OBS WELL 1-C-3 (1-C-4 PUMPING)



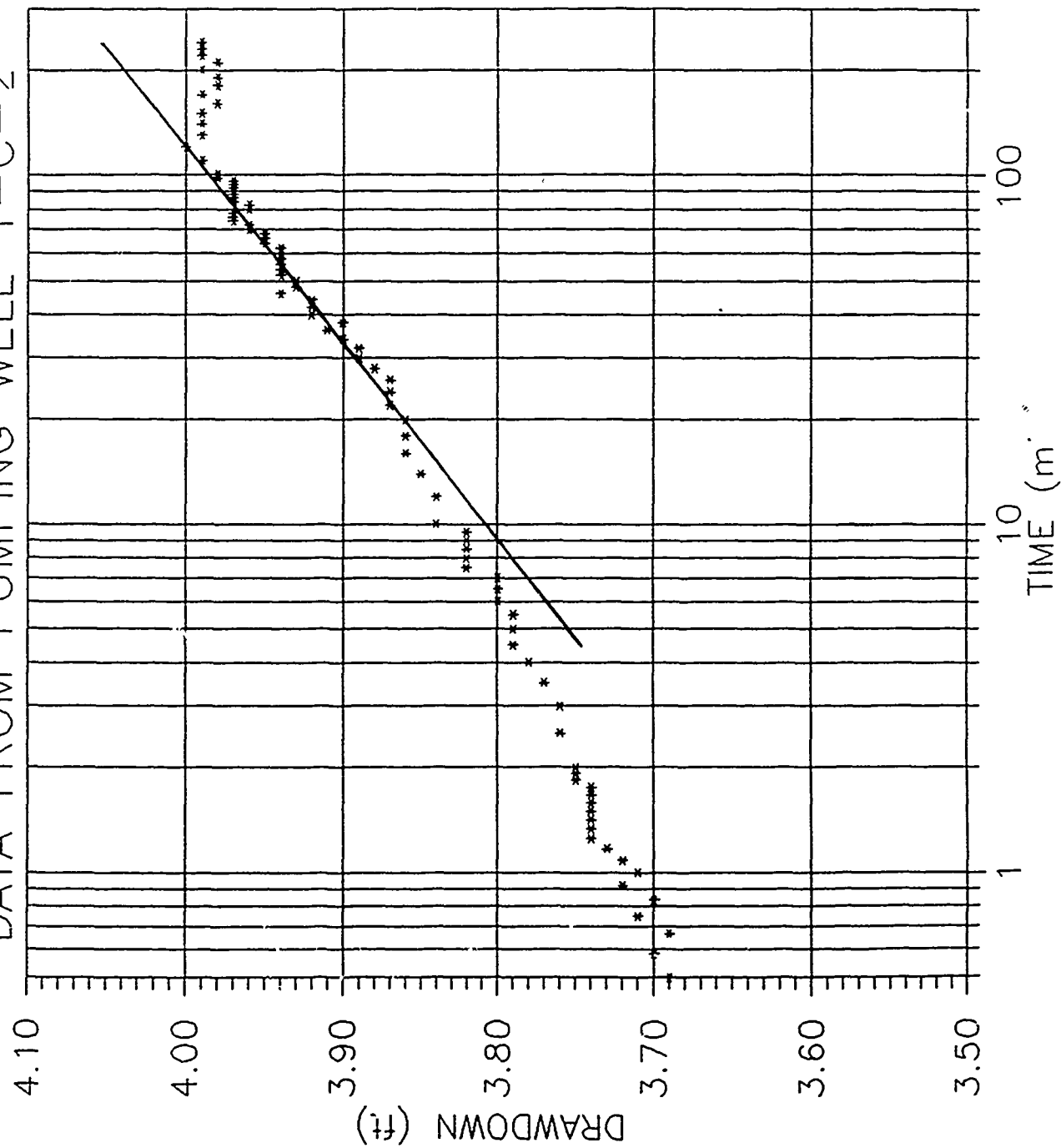
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(94.3 \text{ gpm})(0.15 \text{ ft})}{170,000 \text{ gpd/ft}} \\
 &= 23,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(23,000 \text{ ft}^2/\text{d})}{(46 \text{ ft})} \\
 &= 500 \text{ ft/d}
 \end{aligned}$$

RECOVERY OF STEP DRAWDOWN TEST: 3/6/89 PUMPING WELL 1-C-5



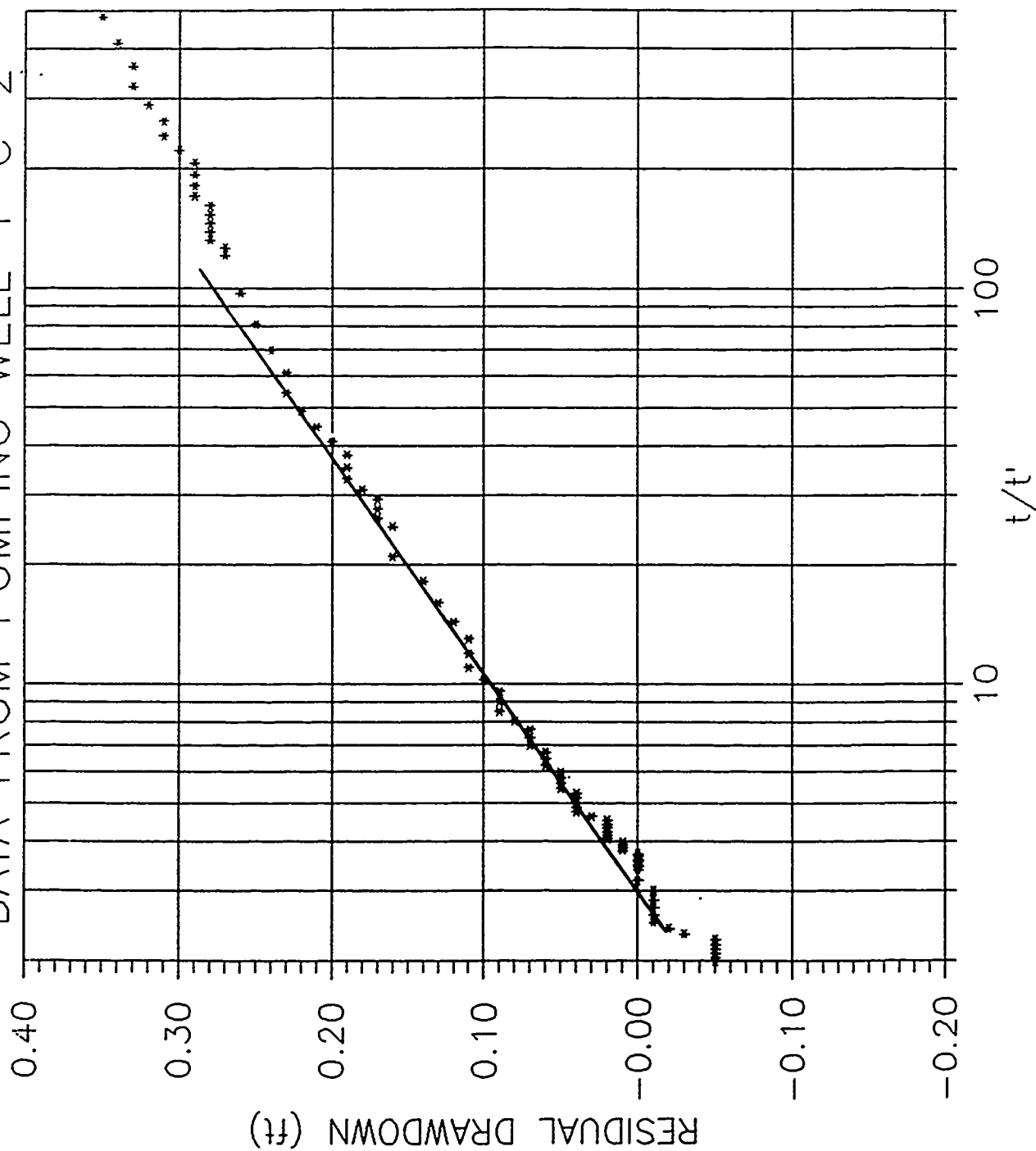
$$\begin{aligned}
 T &= \frac{(264)(Q)(\Delta S)}{(264)(56 \text{ gpm})(0.175 \text{ ft})} \\
 &= \frac{84,000 \text{ gpd/ft}}{11,000 \text{ ft/d}} \\
 K &= \frac{T/b}{(11,000 \text{ ft}^2/\text{d})/(47 \text{ ft})} \\
 &= \frac{240 \text{ ft/d}}{240 \text{ ft/d}}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 3/7/89 DATA FROM PUMPING WELL 1-C-2



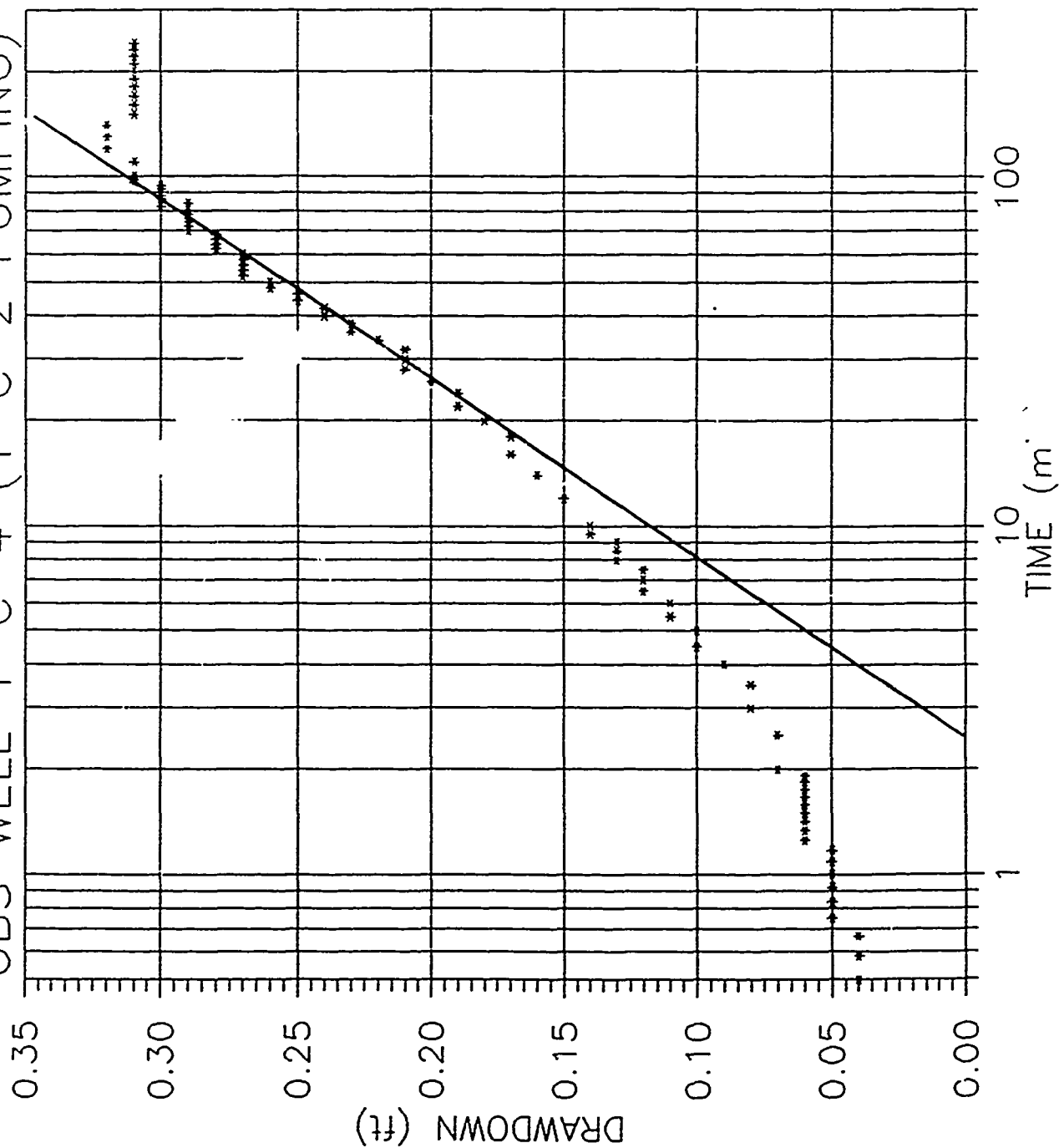
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(89 \text{ gpm})}{(0.18 \text{ ft})} \\
 &= \frac{130,300 \text{ gpd}}{17,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(17,000 \text{ ft}^2/\text{d})}{(47 \text{ ft})}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/7/89 DATA FROM PUMPING WELL 1-C-2



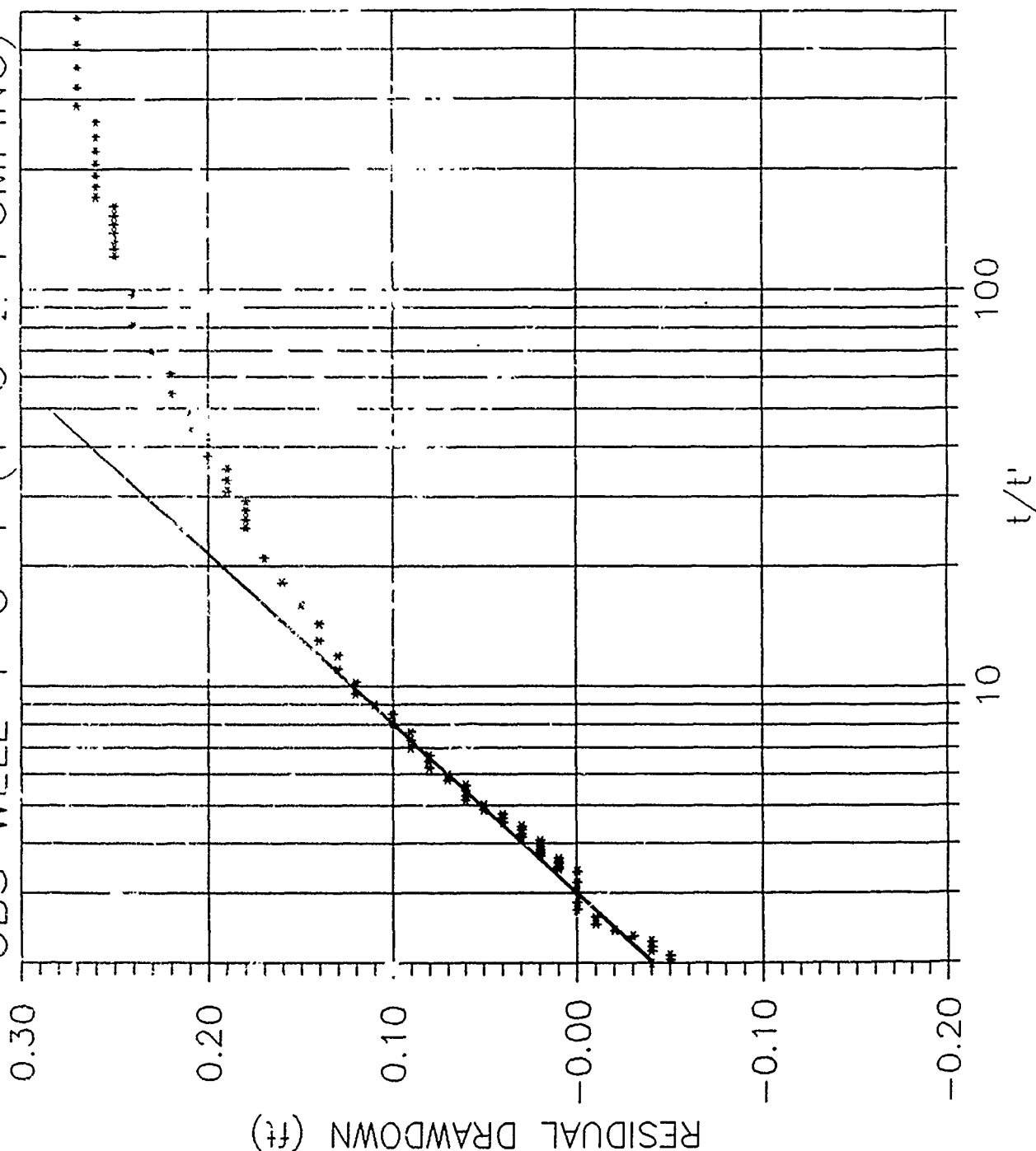
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(89 \text{ gpm})(0.19 \text{ ft})}{120,000 \text{ gpd/ft}} \\
 &= 16,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(16,000 \text{ ft}^2/\text{d})}{(47 \text{ ft})} \\
 &= 350 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 3/7/89 OBS WELL 1-C-4 (1-C-2 PUMPING)



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(89 \text{ gpm})(0.20 \text{ ft})} \\
 &= \frac{120,000 \text{ gpd/ft}}{16,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{(16,000 \text{ ft}^2/\text{d})/(47 \text{ ft})}{330 \text{ ft/d}} \\
 S &= \frac{(2.25)(T)(t_0)/(r^2)}{(2.25)(1 \text{ ft}^2/\text{min})(2.4 \text{ min})} \\
 &= \frac{(86.7 \text{ ft})}{8.0 \times 10^{-3}}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/7/89 OBS WELL 1-C-4 (1-C-2 PUMPING)



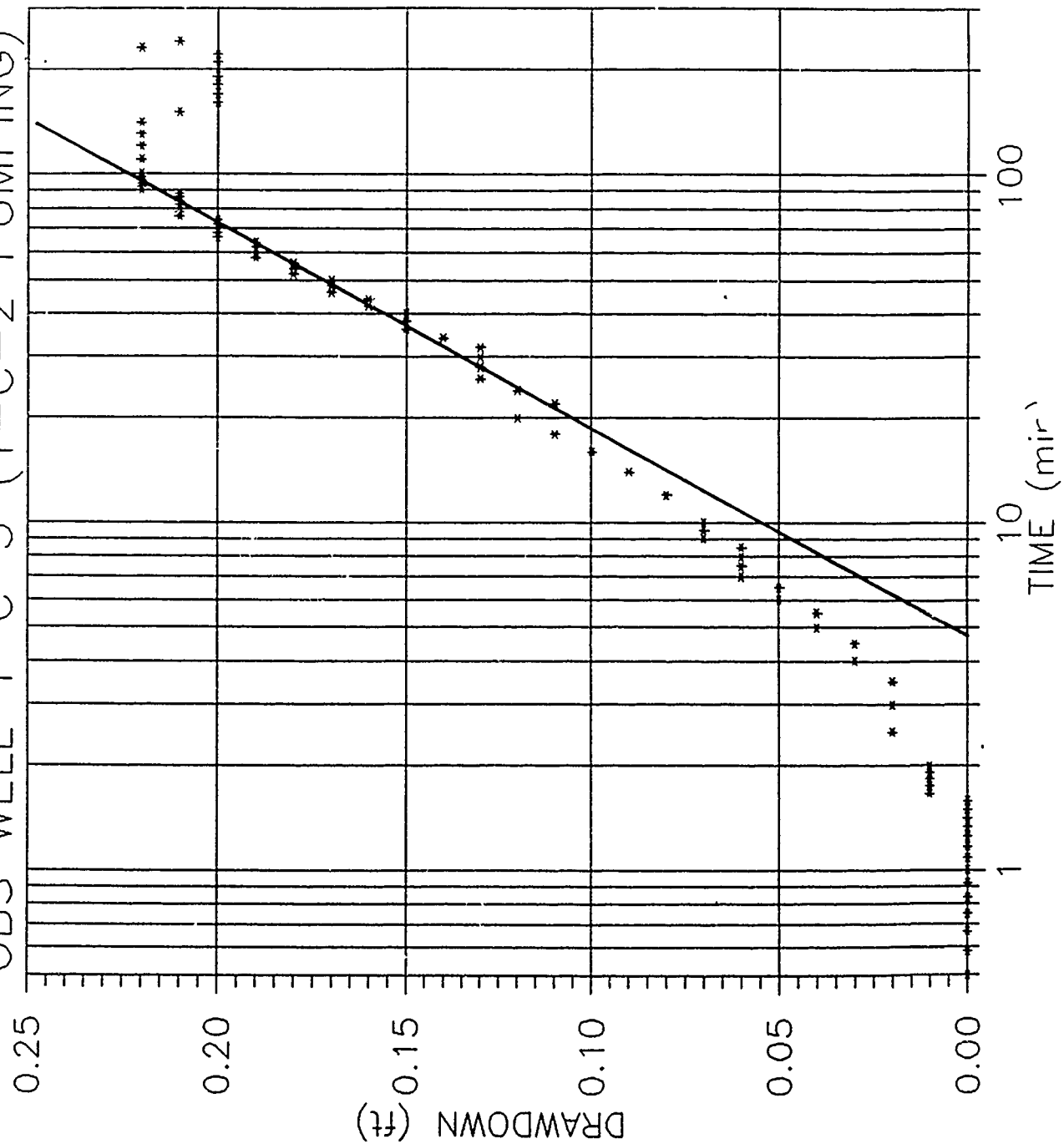
$$T = \frac{(264)(Q)}{(89 \text{ gpm})(0.22 \text{ ft})}$$

$$= \frac{110,000 \text{ gpd/ft}}{14,000 \text{ ft}^2/\text{d}}$$

$$K = \frac{T/b}{(14,000 \text{ ft}^2/\text{d})/(47 \text{ ft})}$$

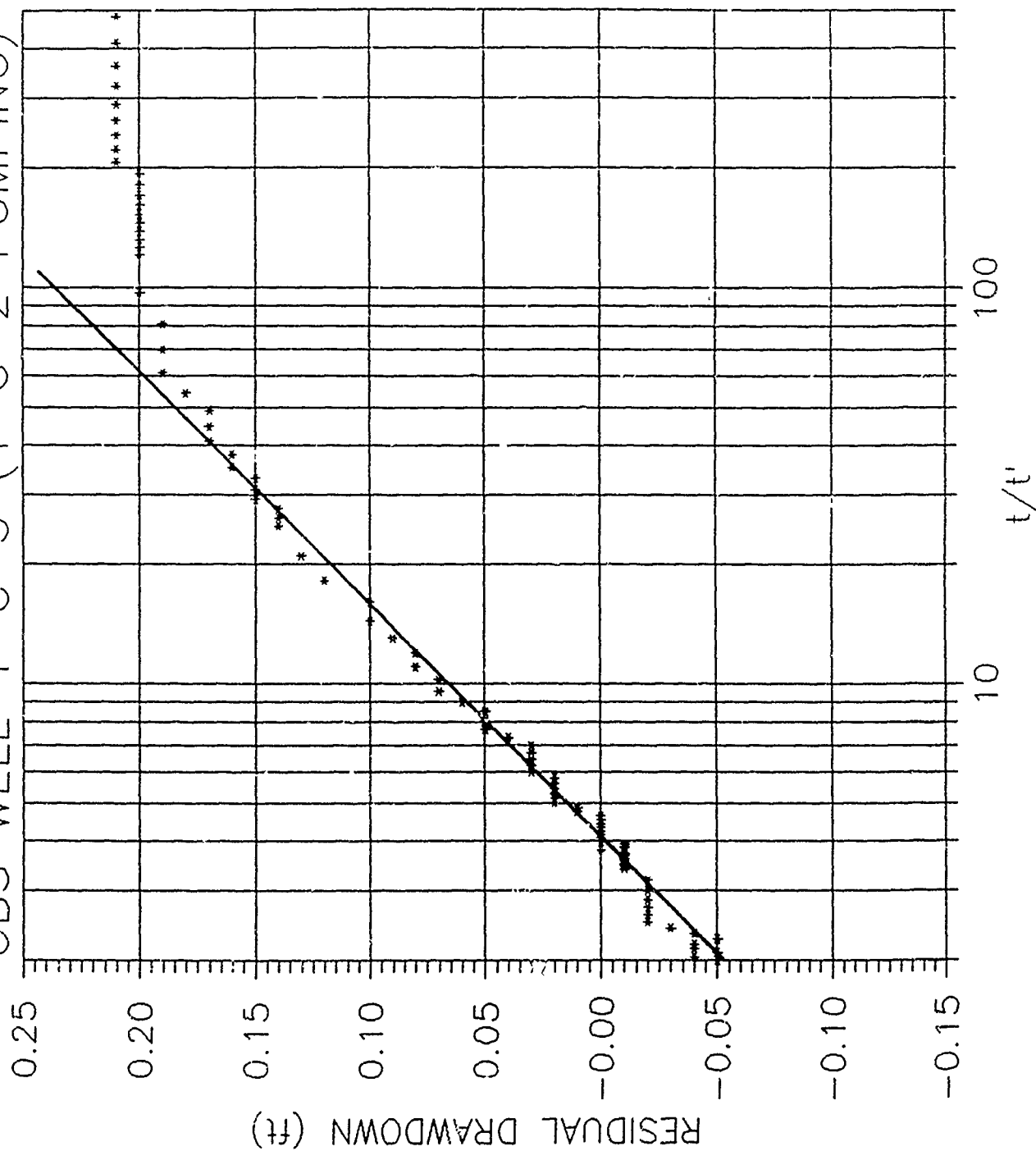
$$= \frac{300 \text{ ft/d}}{300 \text{ ft/d}}$$

PUMP DRAWDOWN TEST: 3/7/89 OBS WELL 1-C-5 (1-C-2 PUMPING)



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(89 \text{ gpm})(0.17 \text{ ft}) \\
 &= 140,000 \text{ gpd/ft} \\
 &= 18,000 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (18,000 \text{ ft}^2/\text{d})/(47 \text{ ft}) \\
 &= 390 \text{ ft/d} \\
 S &= (2.25)(T)(t_0)/(r^2) \\
 &= (2.25)(13 \text{ ft}^2/\text{min})(4.9 \text{ min})/ \\
 &= 1.7 \times 10^{-2}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/7/89 OBS WELL 1-C-5 (1-C-2 PUMPING)



$$T = \frac{(264)(Q)}{(264)(89 \text{ gpm})(0.17 \text{ ft})}$$

$$= \frac{140,000 \text{ gpd/ft}}{18,000 \text{ ft}^2/\text{d}}$$

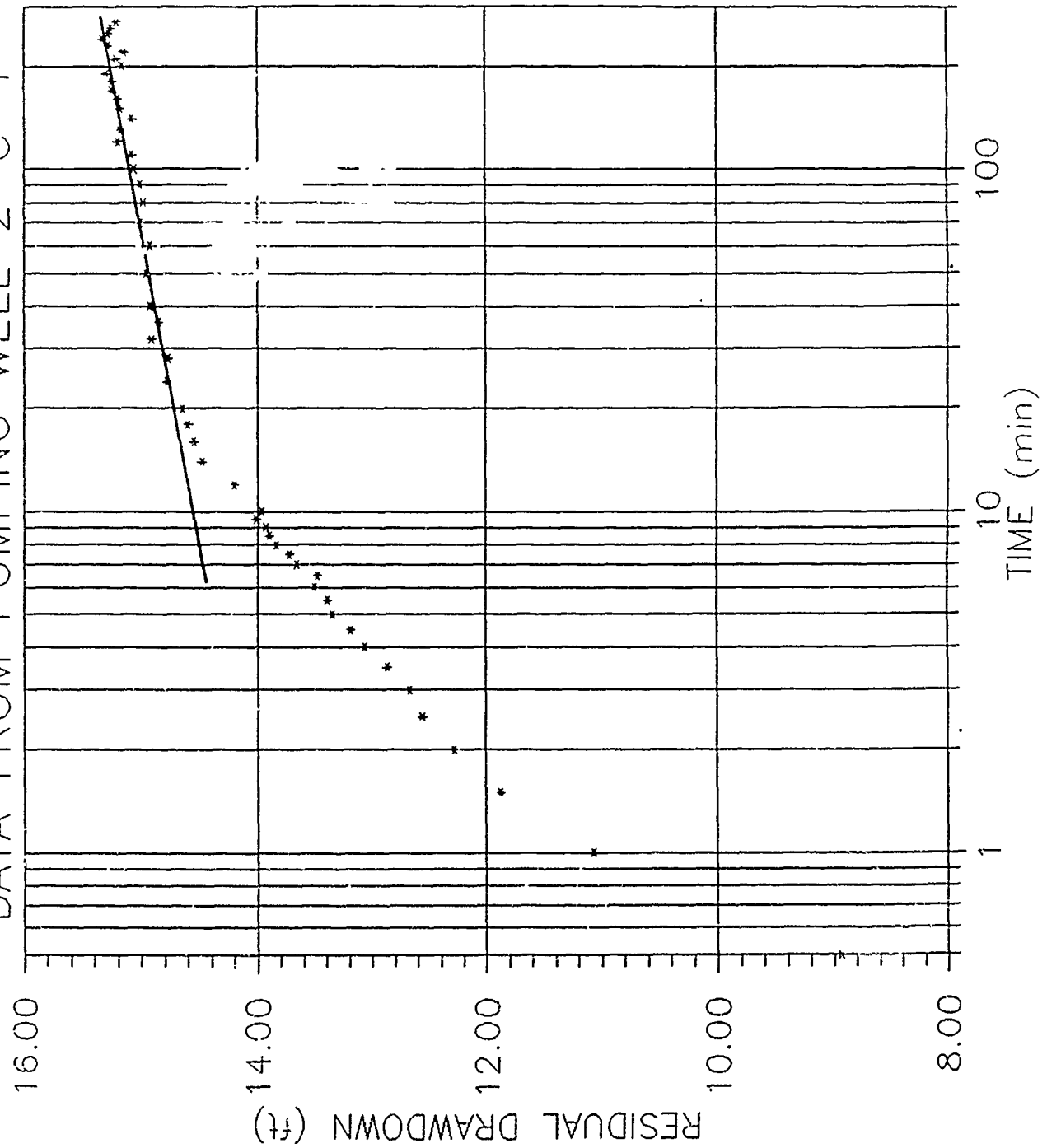
$$K = \frac{T}{b} = \frac{(18,000 \text{ ft}^2/\text{d})/(47 \text{ ft})}{390 \text{ ft/d}}$$

SITE 2

PHOTOWASTE WATER TREATMENT PLANT,
INJECTION WELL, AND SLUDGE BASINS

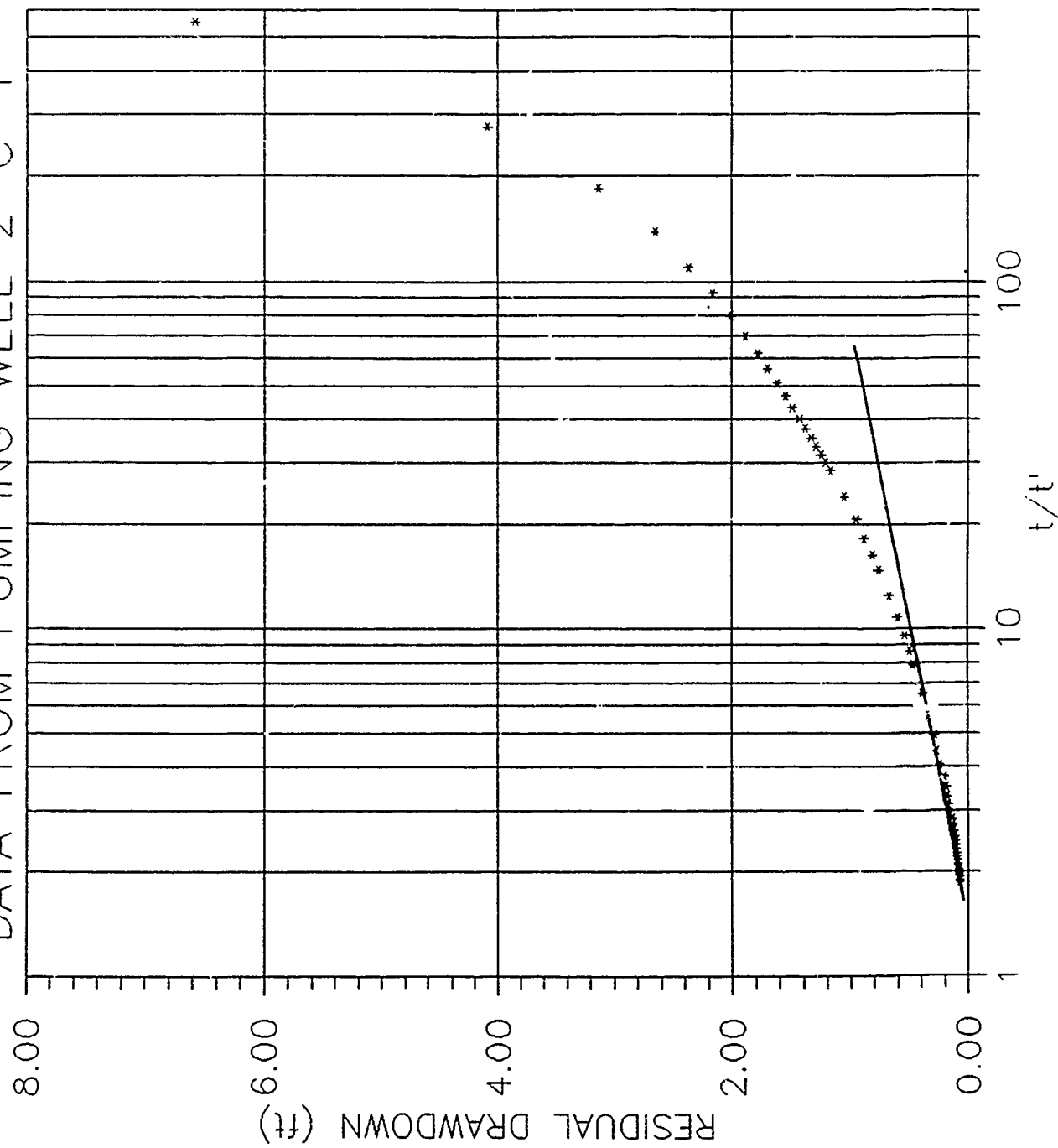
Pump Test Plots

PUMP DRAWDOWN TEST: 2/2/89 DATA FROM PUMPING WELL 2-C-1



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(14.8 \text{ gpm}) / (0.5 \text{ ft})} \\
 &= \frac{7,800 \text{ gpd}}{1,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(1,000 \text{ ft}^2/\text{d}) / (20 \text{ ft})}{52 \text{ ft/d}}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/2/89 DATA FROM PUMPING WELL 2-C-1



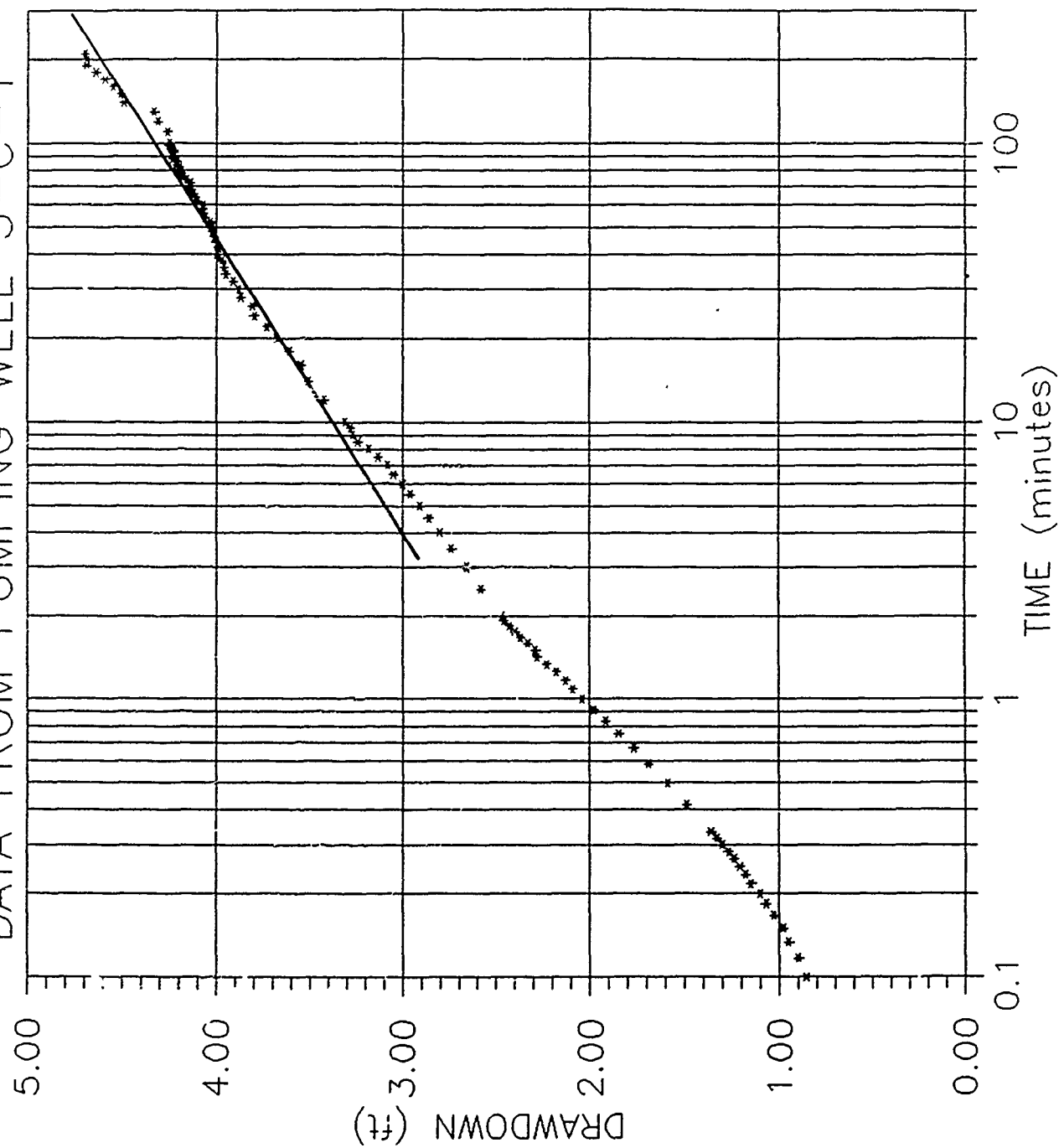
$$\begin{aligned}
 T &= \frac{(264)(0)}{(\Delta S)} \\
 &= \frac{(264)(14.8 \text{ gpm})}{(0.5 \text{ ft})} \\
 &= 7,800 \text{ gpd/ft} \\
 &= 1,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{1,000 \text{ ft}^2/\text{d}}{(20 \text{ ft})} \\
 &= 52 \text{ ft/d}
 \end{aligned}$$

SITE 3

FIRE PROTECTION TRAINING AREA

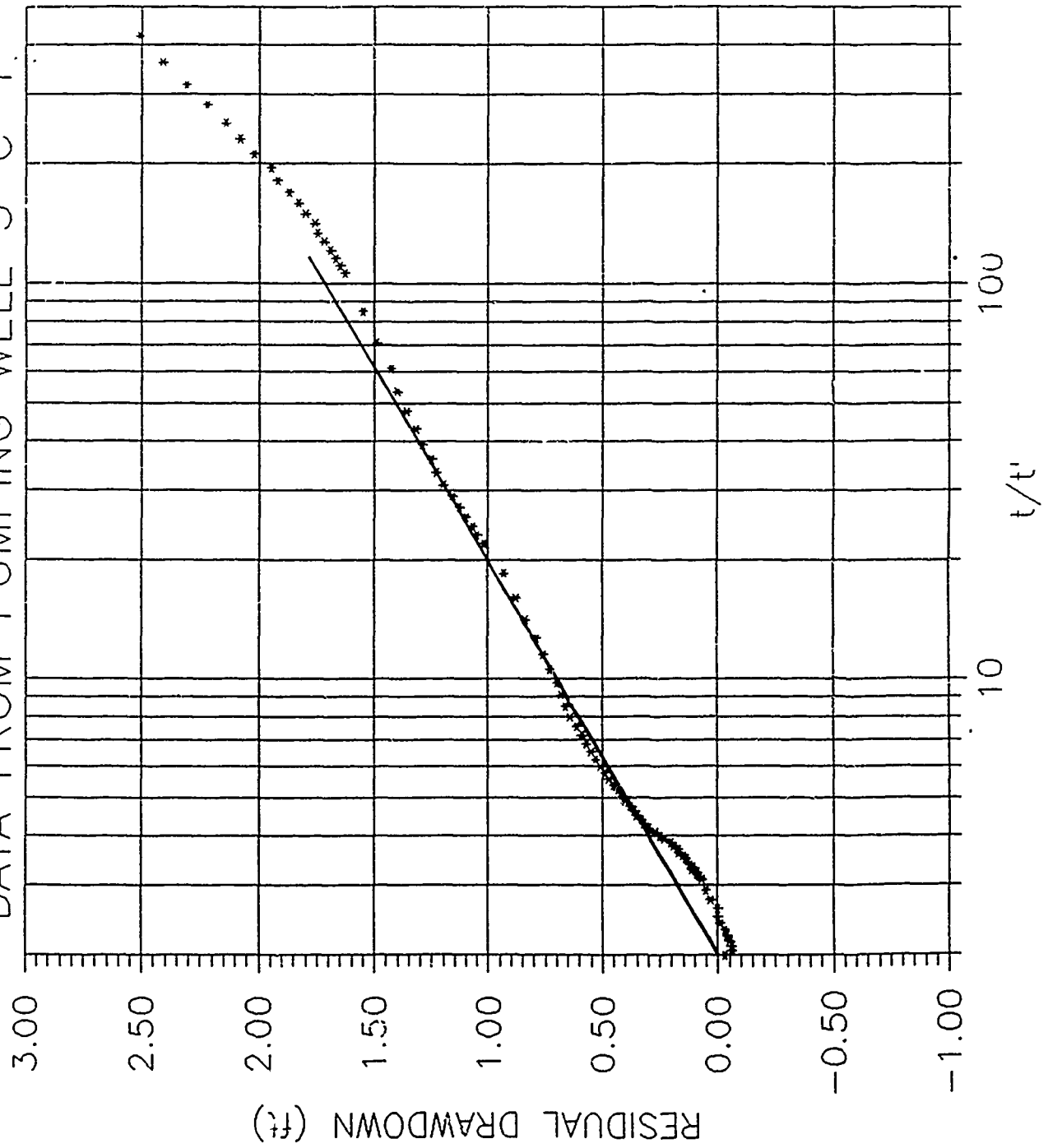
Pump Test Plots

PUMP DRAWDOWN TEST: 3/10/89 DATA FROM PUMPING WELL 3-C-1



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(8.2 \text{ gpm})}{(0.9 \text{ ft})} \\
 &= \frac{2,164.8 \text{ gpm}}{0.9 \text{ ft}} \\
 &= 2,405.3 \text{ gpd/ft} \\
 &= 320 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{2,405.3 \text{ ft}^2/\text{d}}{(14 \text{ ft})} \\
 &= 171.8 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/10/89 DATA FROM PUMPING WELL 3-C-1



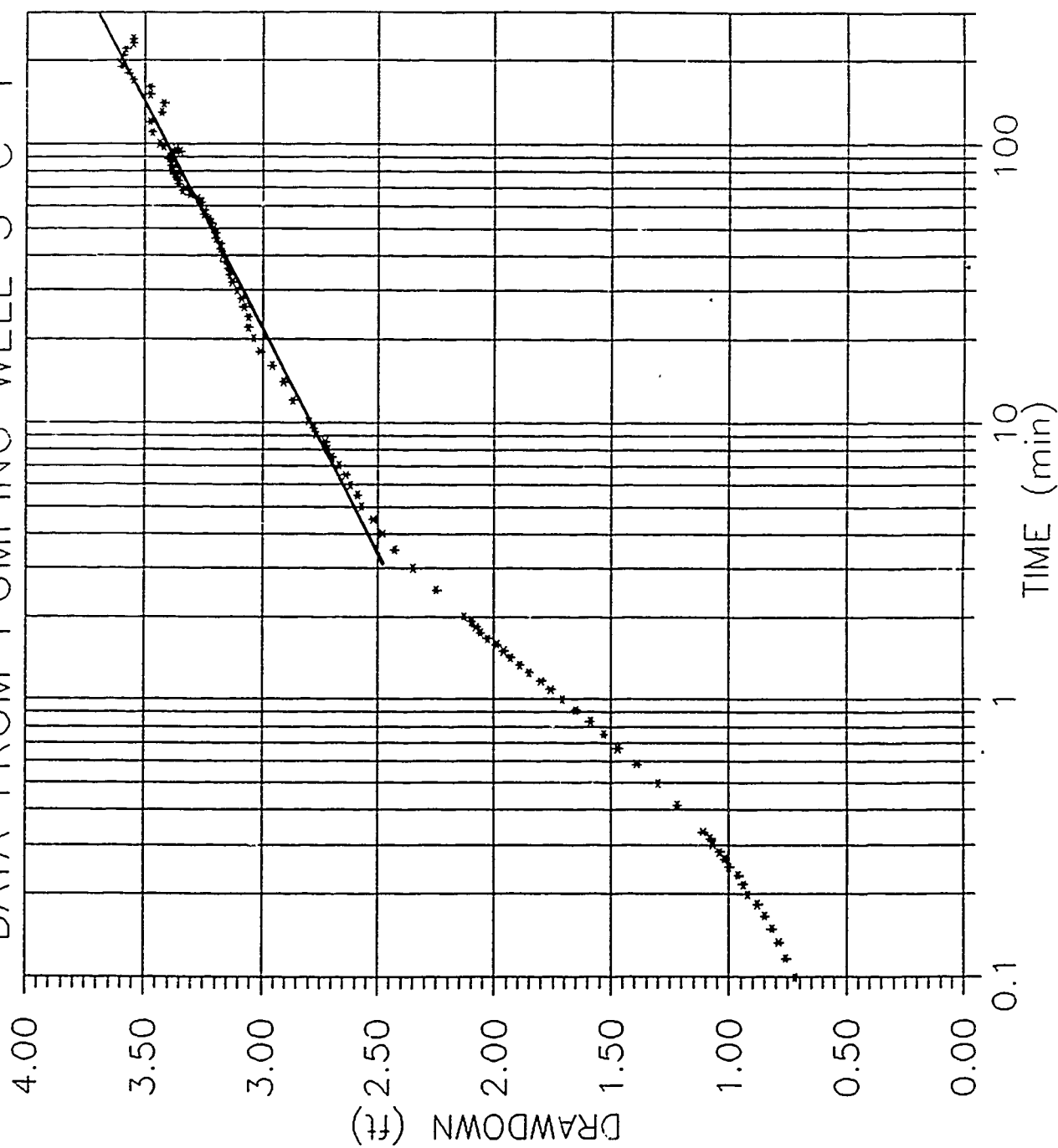
$$\begin{aligned}
 T &= \frac{(264)(Q)(\Delta S)}{(264)(8.2 \text{ gpm})/(1.0 \text{ ft})} \\
 &= \frac{2,200 \text{ gpd/ft}}{290 \text{ ft}^2/\text{d}} \\
 K &= \frac{T/b}{21 \text{ ft/d}} \\
 &= \frac{(2,200 \text{ ft}^2/\text{d})/(14 \text{ ft})}{21 \text{ ft/d}}
 \end{aligned}$$

SITE 5

SR-71 SHELTERS DRAINAGE AREA

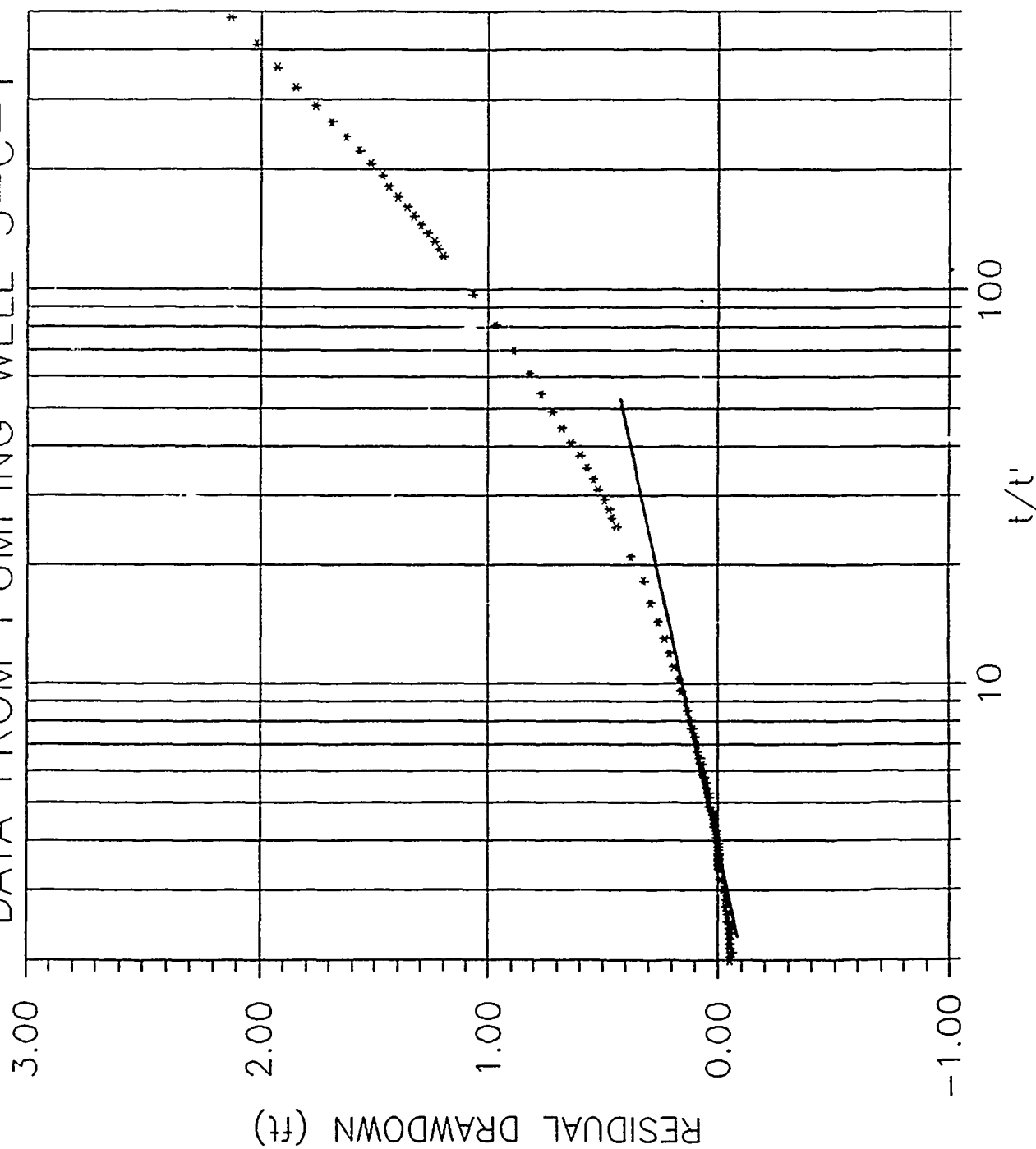
Pump Test Plots

PUMP DRAWDOWN TEST: 3/3/89 DATA FROM PUMPING WELL 5-C-1



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(8.5 \text{ gpm})}{(0.6 \text{ ft})} \\
 &= 3,700 \text{ gpd/ft} \\
 &= 500 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(500 \text{ ft}^2/\text{d})}{(17 \text{ ft})} \\
 &= 29 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/3/89 DATA FROM PUMPING WELL 5-C-1



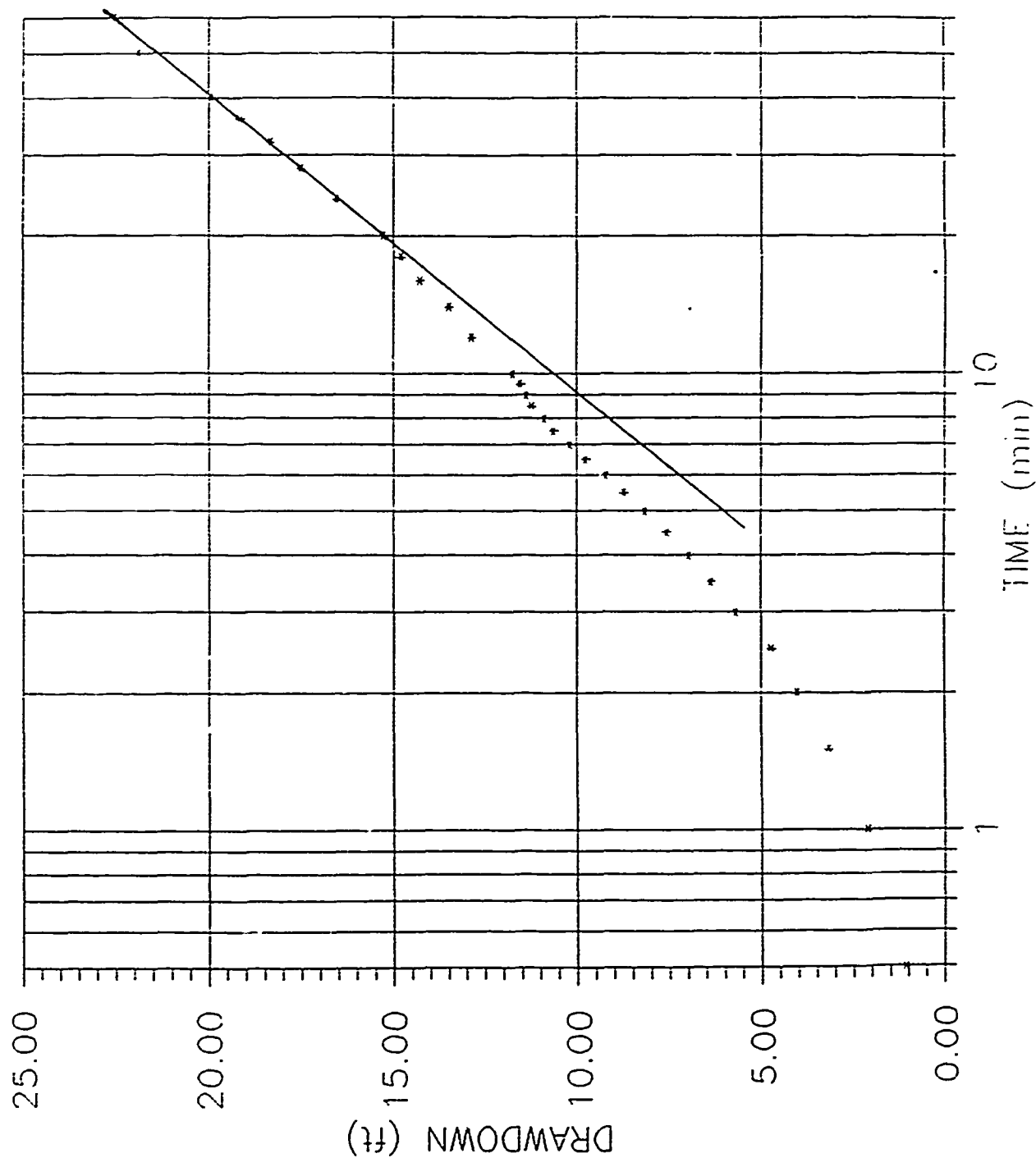
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(8.5 \text{ gpm}) / (0.3 \text{ ft})} \\
 &= \frac{7,500 \text{ gpd}}{1,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{1,000 \text{ ft}^2/\text{d}}{59 \text{ ft}}
 \end{aligned}$$

SITE 6

LANDFILL NO. 2

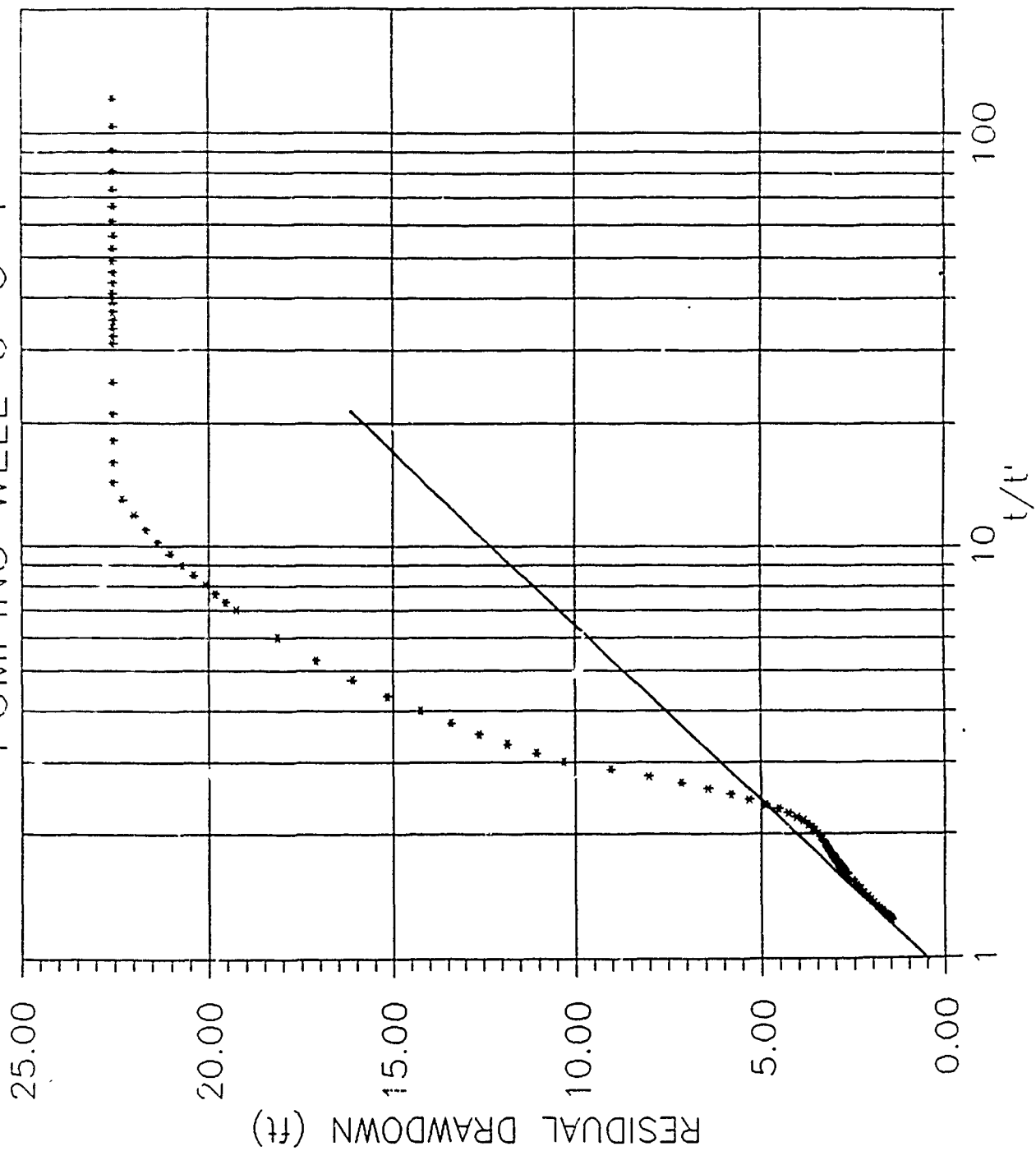
Pump Test Plots

PUMP DRAWDOWN TEST: 2/1/89 PUMPING WELL 6-C-1



$$\begin{aligned}
 T &= \frac{(264)(Q)(\Delta S)}{(264)(1.5 \text{ gpm})/(15.5 \text{ ft})} \\
 &= \frac{26 \text{ gpd/ft}}{3.4 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{3.4 \text{ ft}^2/\text{d}}{(20 \text{ ft})} \\
 &= 0.17 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/1/89 PUMPING WELL 6-C-1



$$T = \frac{(264)(Q)}{(264)(1.5 \text{ gpm}) / (11.5 \text{ ft})}$$

$$= \frac{34 \text{ gpd/ft}}{4.6 \text{ ft/d}}$$

$$K = \frac{T/b}{(4.6 \text{ ft}^2/d) / (20 \text{ ft})}$$

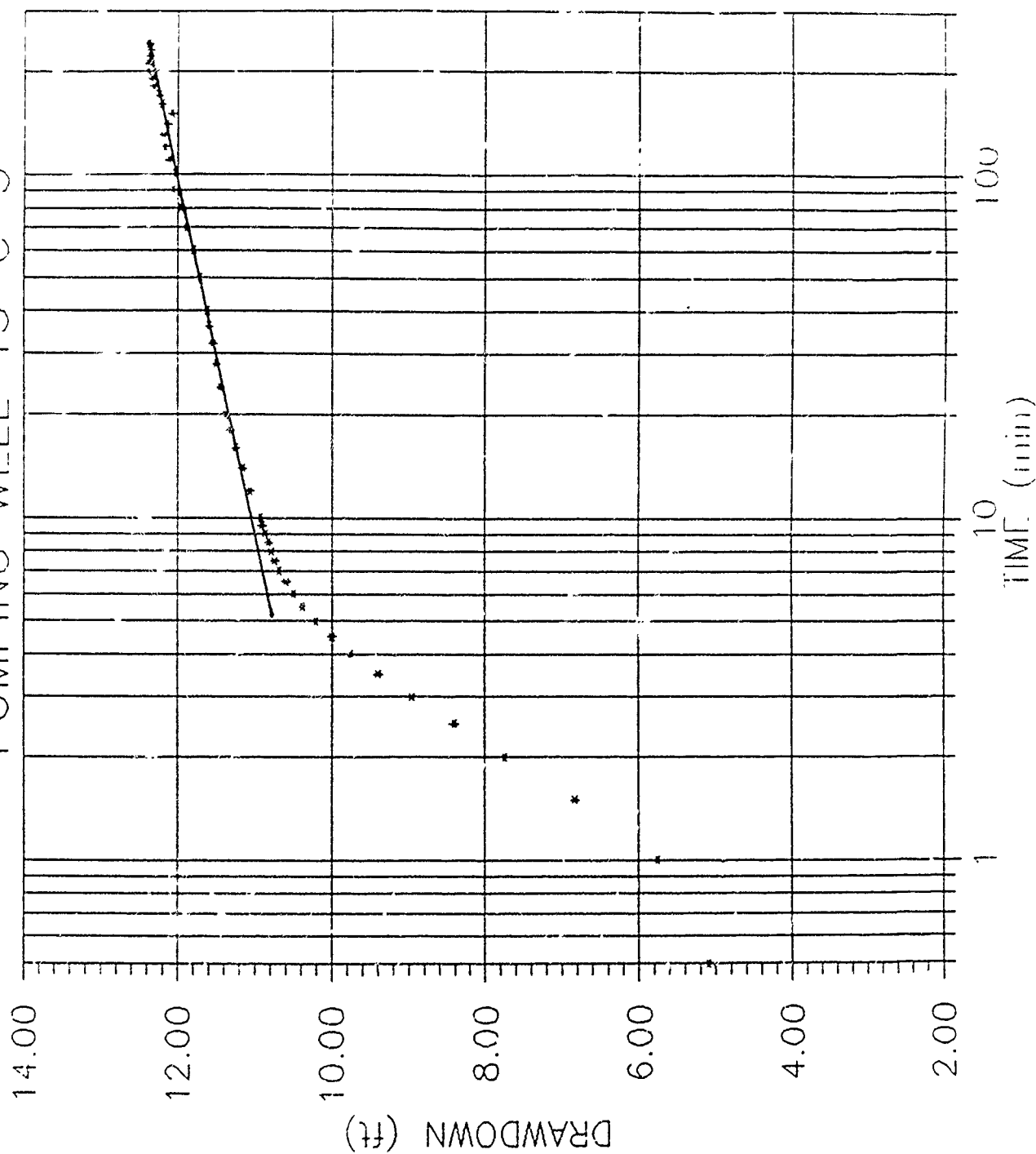
$$= \frac{0.23 \text{ ft/d}}{0.23 \text{ ft/d}}$$

SITE 13

LANDFILL NO. 1

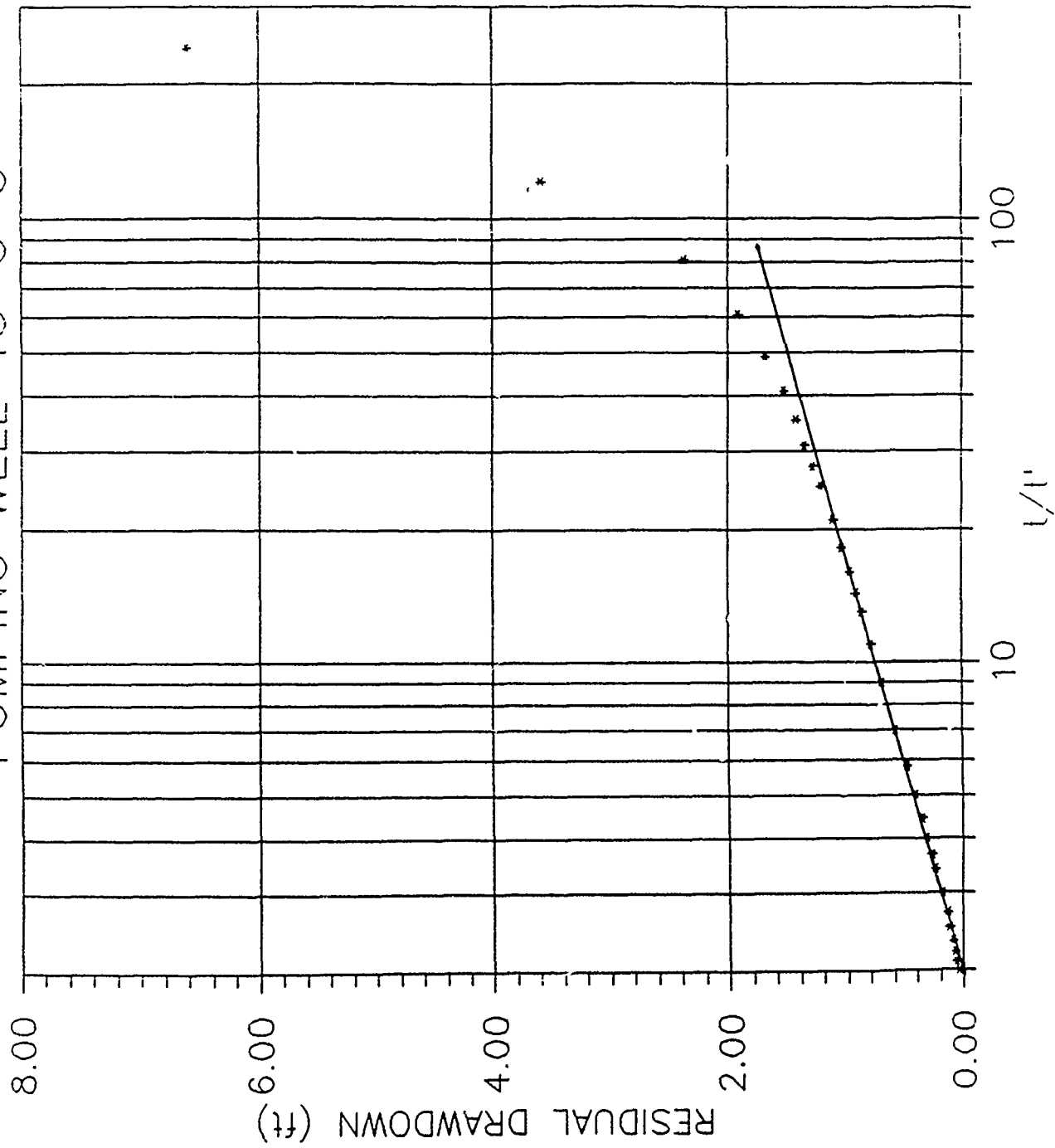
Pump Test Plots

PUMP DRAWDOWN TEST: 2/3/89 PUMPING WELL 13-C-5



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(10.9 \text{ gpm})}{(1.0 \text{ ft})} \\
 &= 2,900 \text{ gpd/ft} \\
 &= 380 \text{ ft/d} \\
 K &= \frac{T}{b} \\
 &= \frac{380 \text{ ft/d}}{(20 \text{ ft})} \\
 &= 19 \text{ ft/d}
 \end{aligned}$$

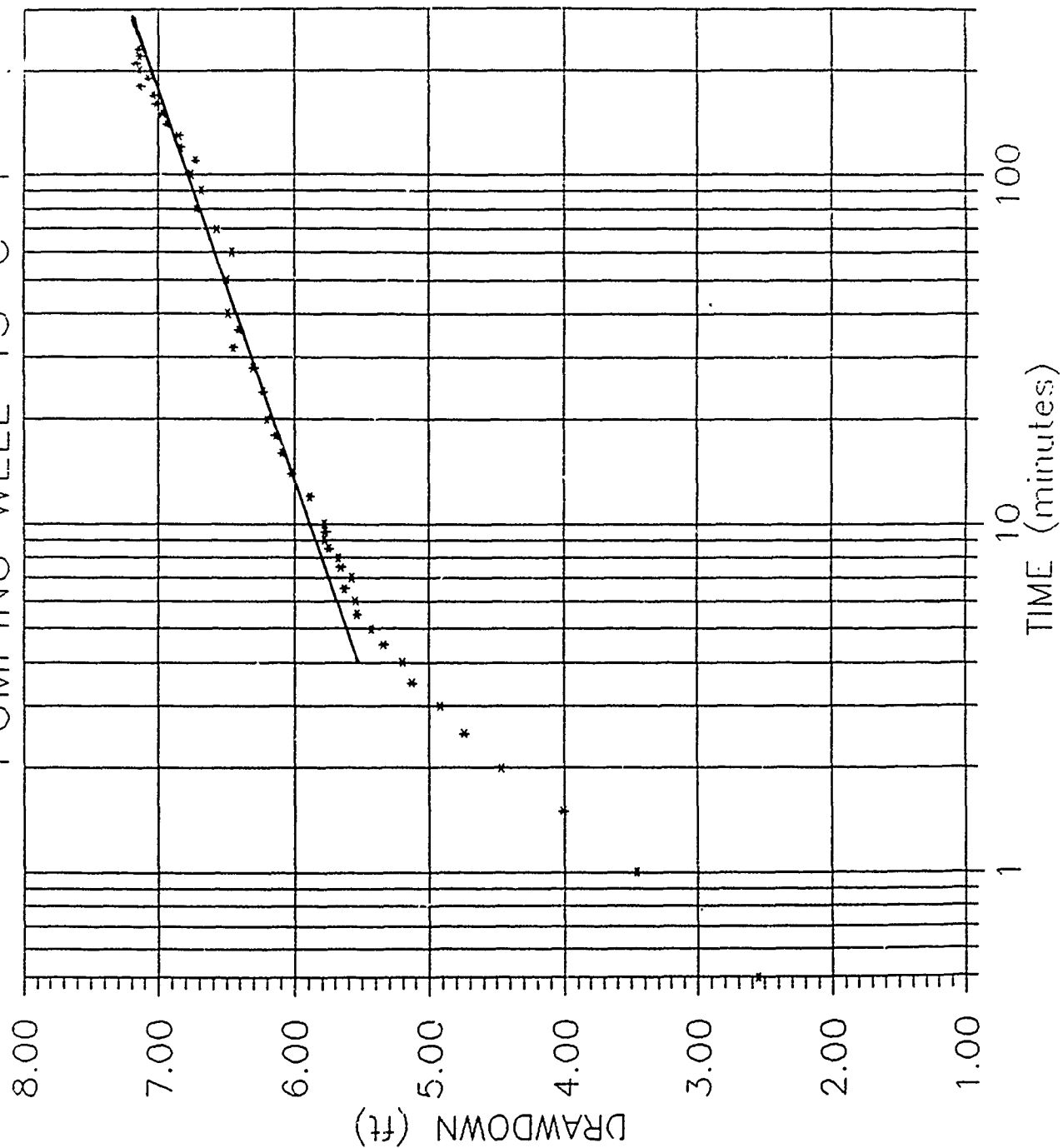
PUMP RECOVERY TEST: 2/3/89 PUMPING WELL 13-C-5



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(10.9 \text{ gpm})/(1.0 \text{ ft}) \\
 &= 2,900 \text{ gpd/ft} \\
 &= 380 \text{ ft}^2/\text{d}
 \end{aligned}$$

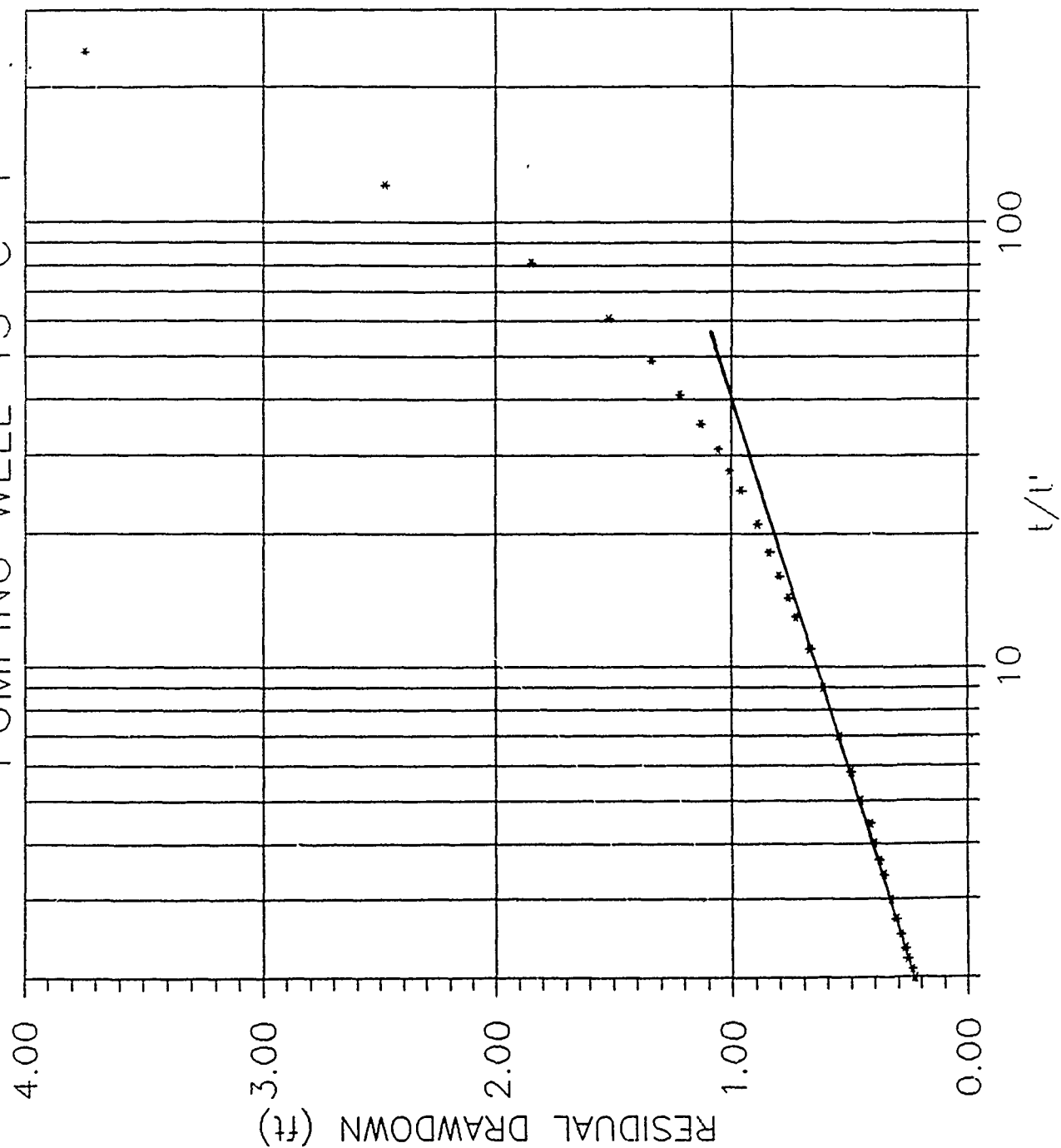
$$\begin{aligned}
 K &= T/b \\
 &= (380 \text{ ft}^2/\text{d})/(20 \text{ ft}) \\
 &= 19 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/15/89 PUMPING WELL 13-C-4



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(6.3 \text{ gpm})/(0.9 \text{ ft}) \\
 &= 1,800 \text{ gpd/ft} \\
 &= 250 \text{ ft/d} \\
 K &= T/b \\
 &= (250 \text{ ft}^2/\text{d})/(19 \text{ ft}) \\
 &= 13 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/15/89 PUMPING WELL 13-C-4



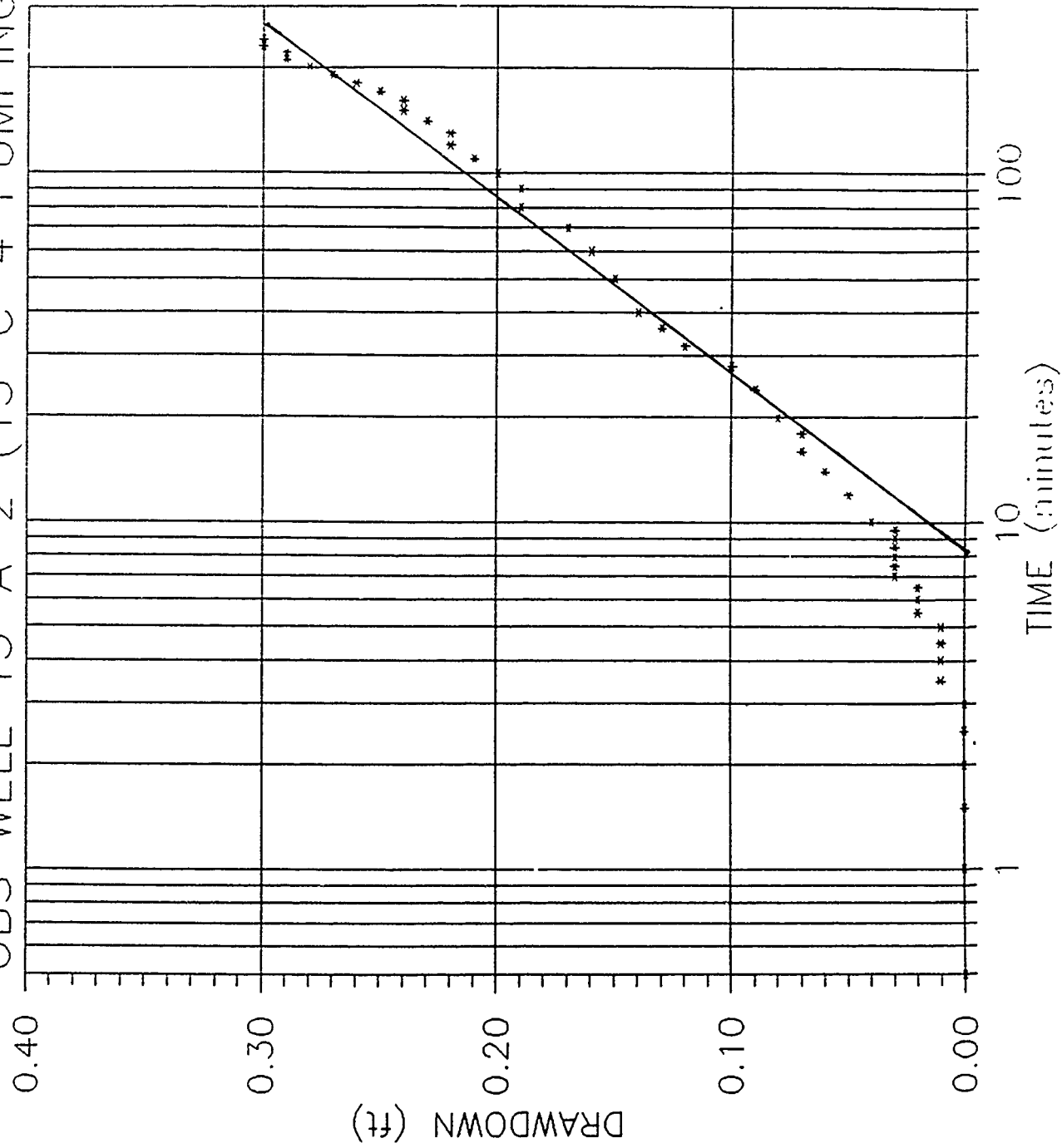
$$T = \frac{(264)(Q)(\Delta S)}{(264)(6.3 \text{ gpm})/(0.57 \text{ ft})}$$

$$= \frac{2,900 \text{ gpd/ft}}{390 \text{ ft}^2/\text{d}}$$

$$K = \frac{T/b}{(390 \text{ ft}^2/\text{d})/(19 \text{ ft})}$$

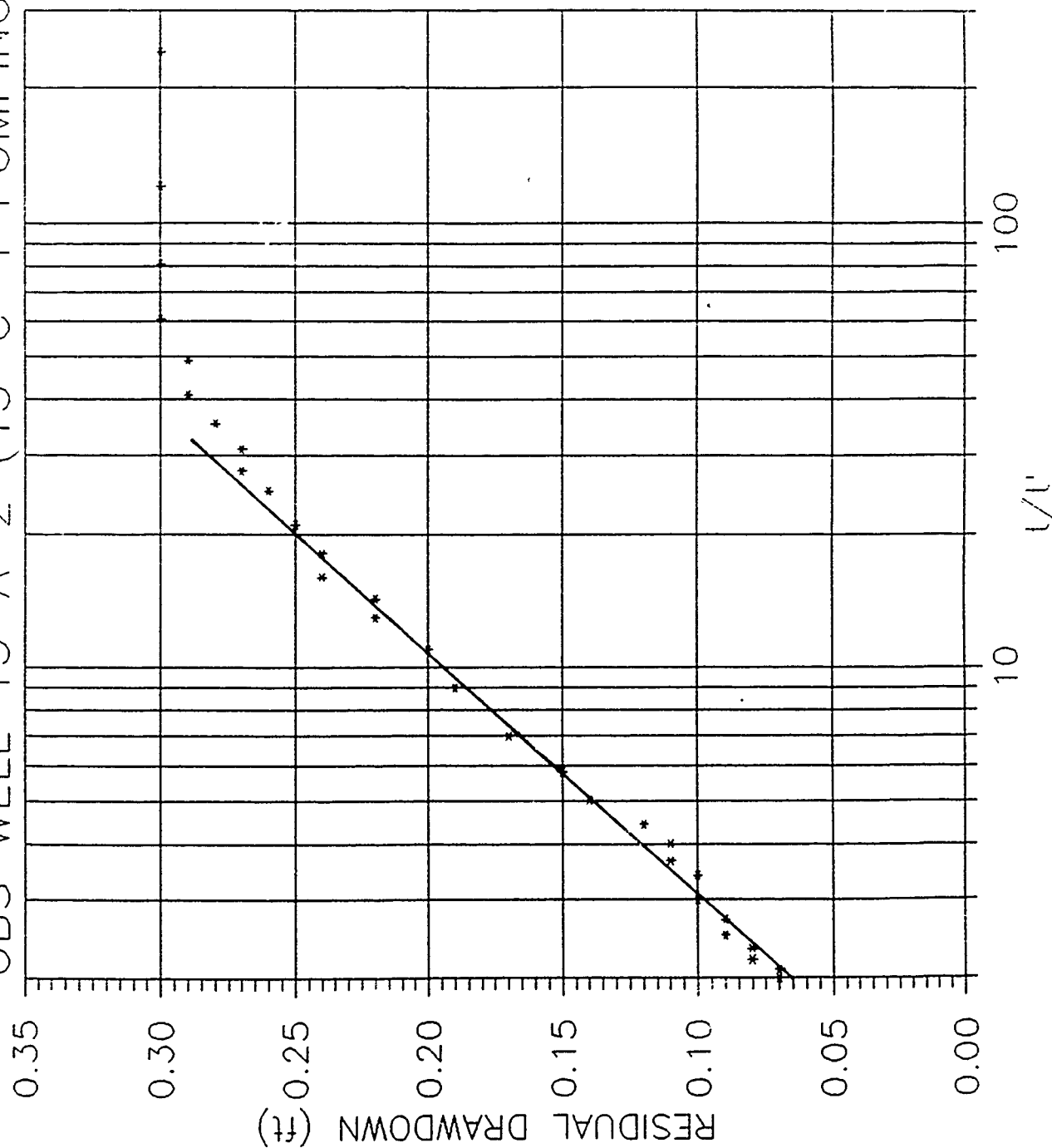
$$= \frac{21 \text{ ft/d}}{21 \text{ ft/d}}$$

PUMP DRAWDOWN TEST: 2/15/89 OBS WELL 13-A-2 (13-C-4 PUMPING)



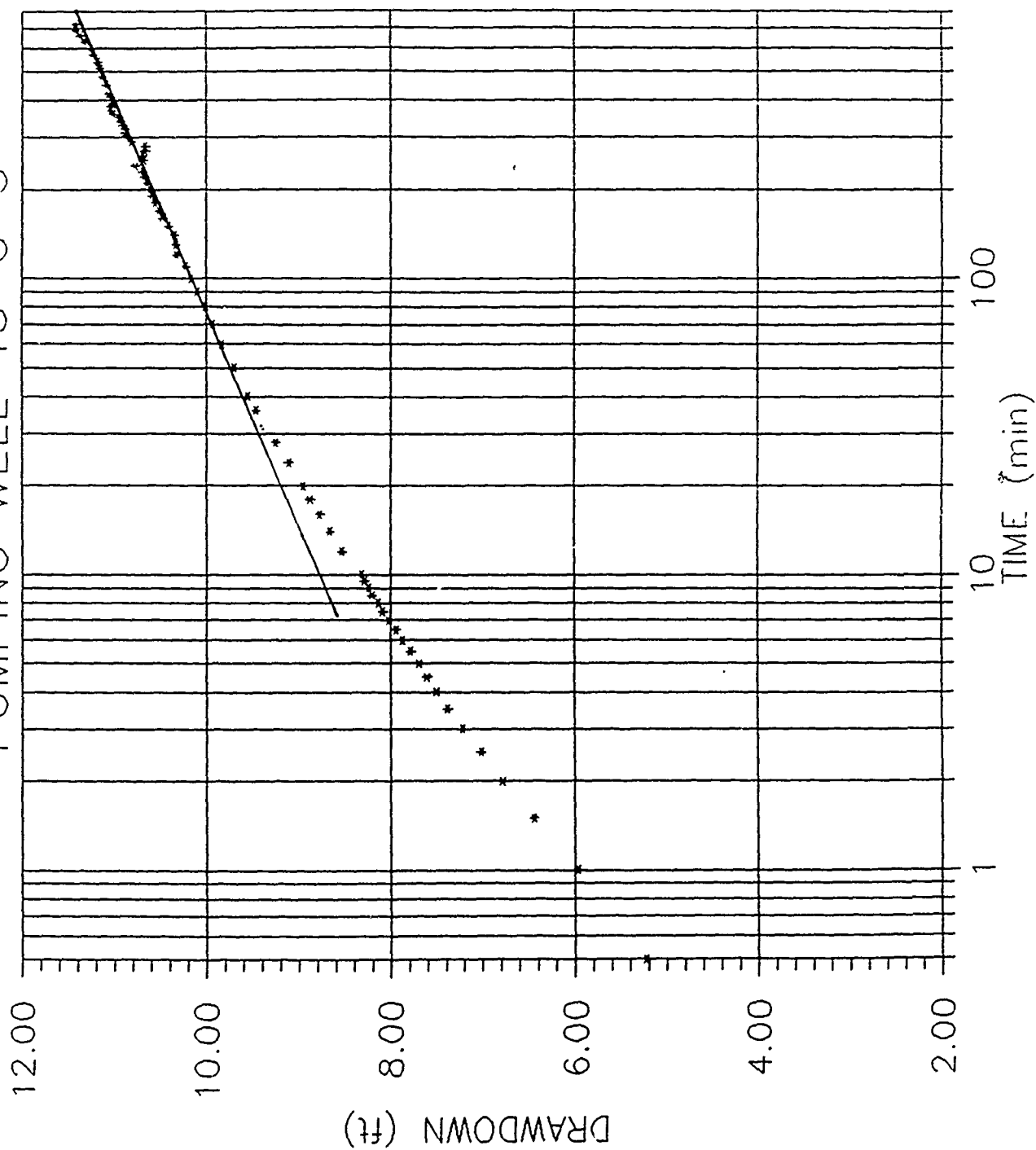
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(6.3 \text{ gpm}) / (0.2 \text{ ft})} \\
 &= \frac{8,300 \text{ gpd}}{1,100 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{(1,100 \text{ ft}^2/\text{d})(19 \text{ ft})}{74 \text{ ft/d}} \\
 S &= \frac{(2.25)(T)(t_0)/l_1}{(2.25)(0.77 \text{ ft})^2 / \text{min}} (8.2 \text{ min}) / \\
 &= \frac{(125.22 \text{ ft})^2}{9.1 \times 10^4}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/15/89 OBS WELL 13-A-2 (13-C-4 PUMPING)



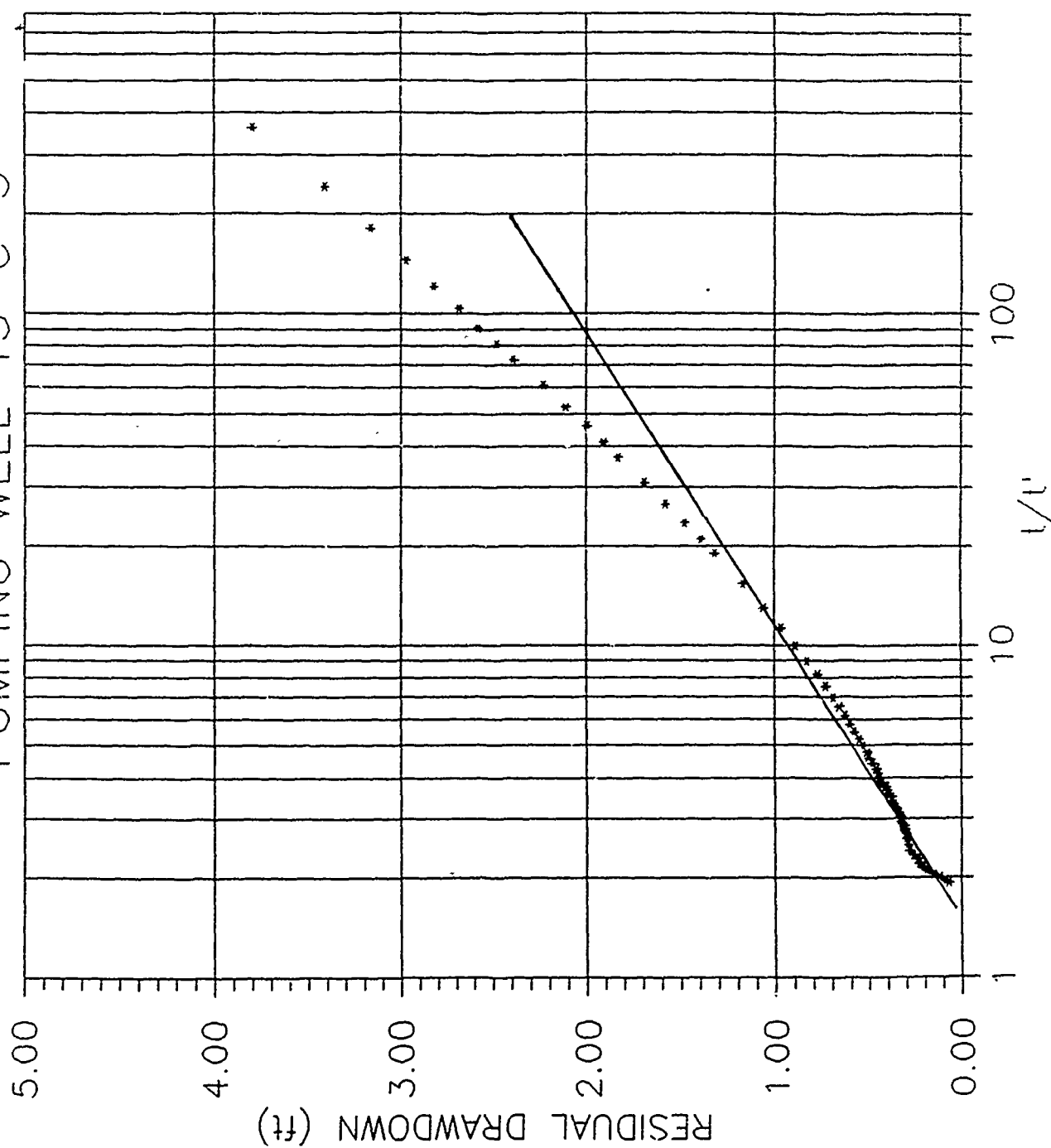
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(6.3 \text{ gpm})}{(0.185 \text{ ft})} \\
 &= 9,000 \text{ gpd/ft} \\
 &= 1,200 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= \frac{(1,200 \text{ ft}^2/\text{d})(19 \text{ ft})}{63 \text{ ft/d}}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/16/89 PUMPING WELL 13-C-3



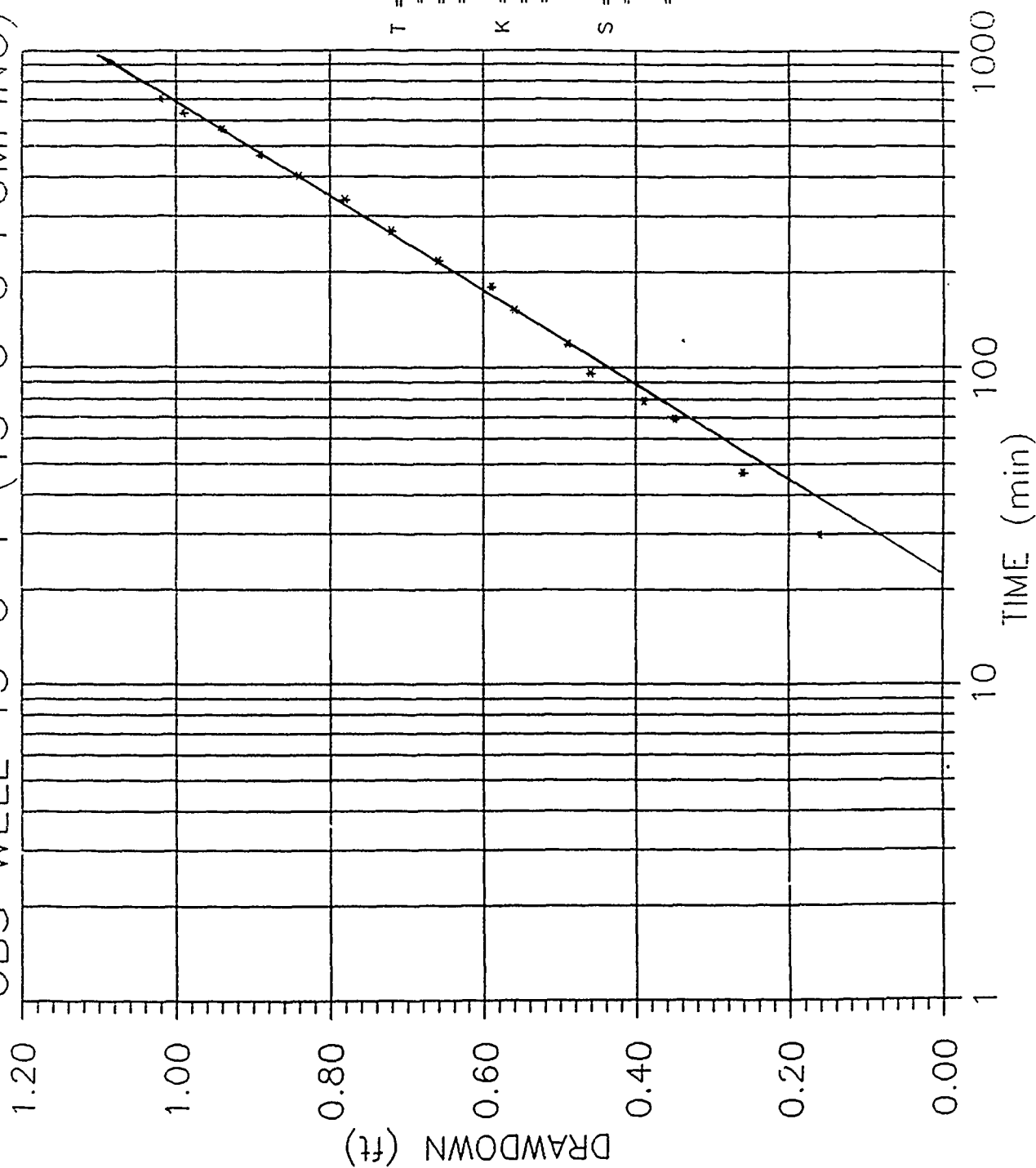
$$\begin{aligned}
 T &= \frac{(264)(Q)/(\Delta S)}{(264)(15.4 \text{ gpm})/(1.4 \text{ ft})} \\
 &= \frac{2,900 \text{ gpd/ft}}{390 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{390 \text{ ft}^2/\text{d}}{20 \text{ ft}} \\
 &= 19 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/17/89 PUMPING WELL 13-C-3



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(15.4 \text{ gpm})/(1.2 \text{ ft}) \\
 &= 3,400 \text{ gpd/ft} \\
 &= 450 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (450 \text{ ft}^2/\text{d})(20 \text{ ft}) \\
 &= 23 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/16/89 OBS WELL 13-C-1 (13-C-3 PUMPING)



$$T = \frac{(264)(Q)}{(\Delta S)}$$

$$= \frac{(264)(15.4 \text{ gpm})}{(0.70 \text{ ft})}$$

$$= 5,800 \frac{\text{gpd}}{\text{ft}}$$

$$= 780 \frac{\text{ft}^2}{\text{d}}$$

$$K = \frac{T}{b}$$

$$= \frac{780 \text{ ft}^2/\text{d}}{(20 \text{ ft})}$$

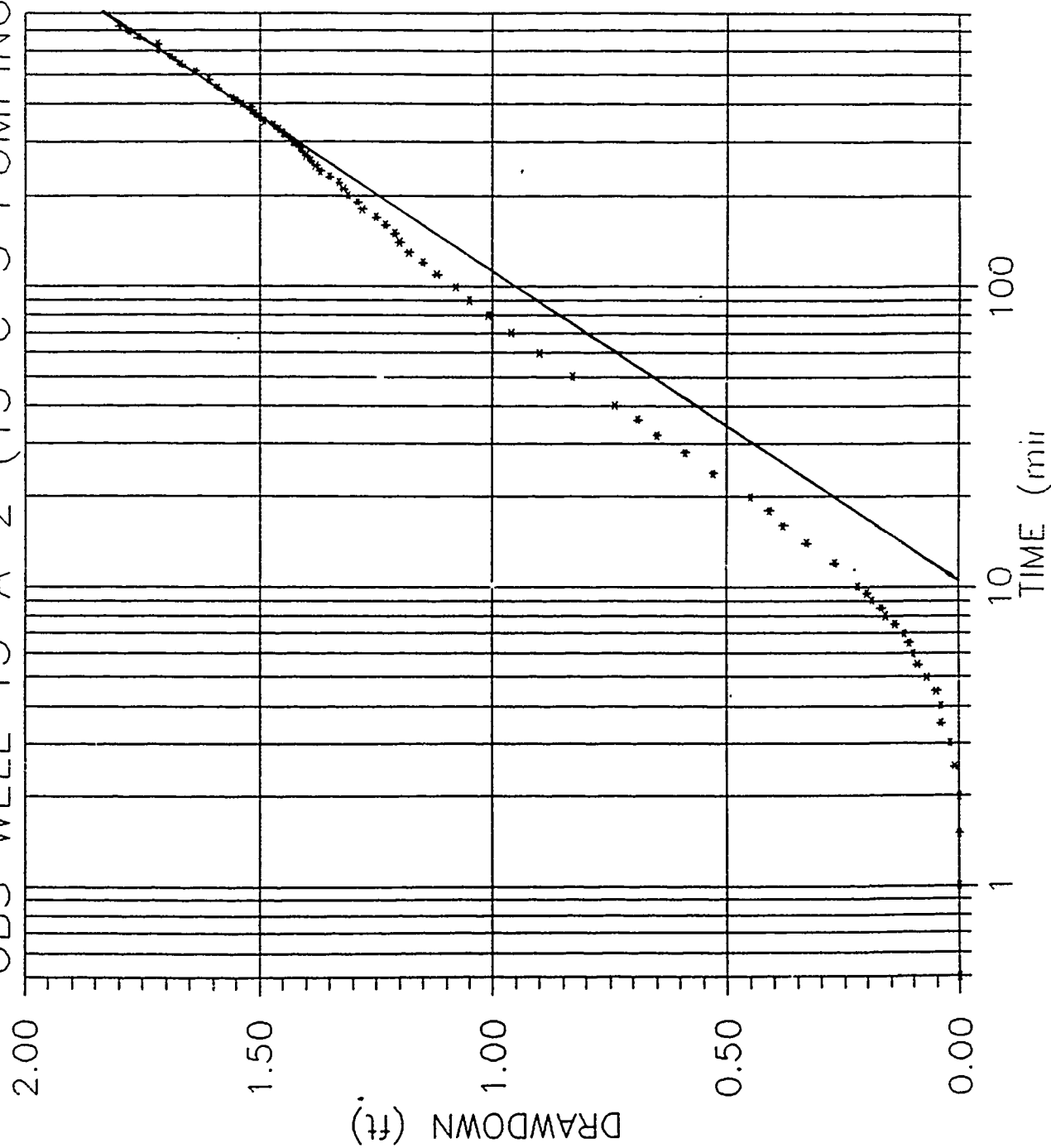
$$= 39 \frac{\text{ft}}{\text{d}}$$

$$S = \frac{(2.25)(T)(t_0)}{(r^2)}$$

$$= \frac{(2.25)(5,800 \text{ ft}^2/\text{d})(22 \text{ min})}{(238.83 \text{ ft})^2}$$

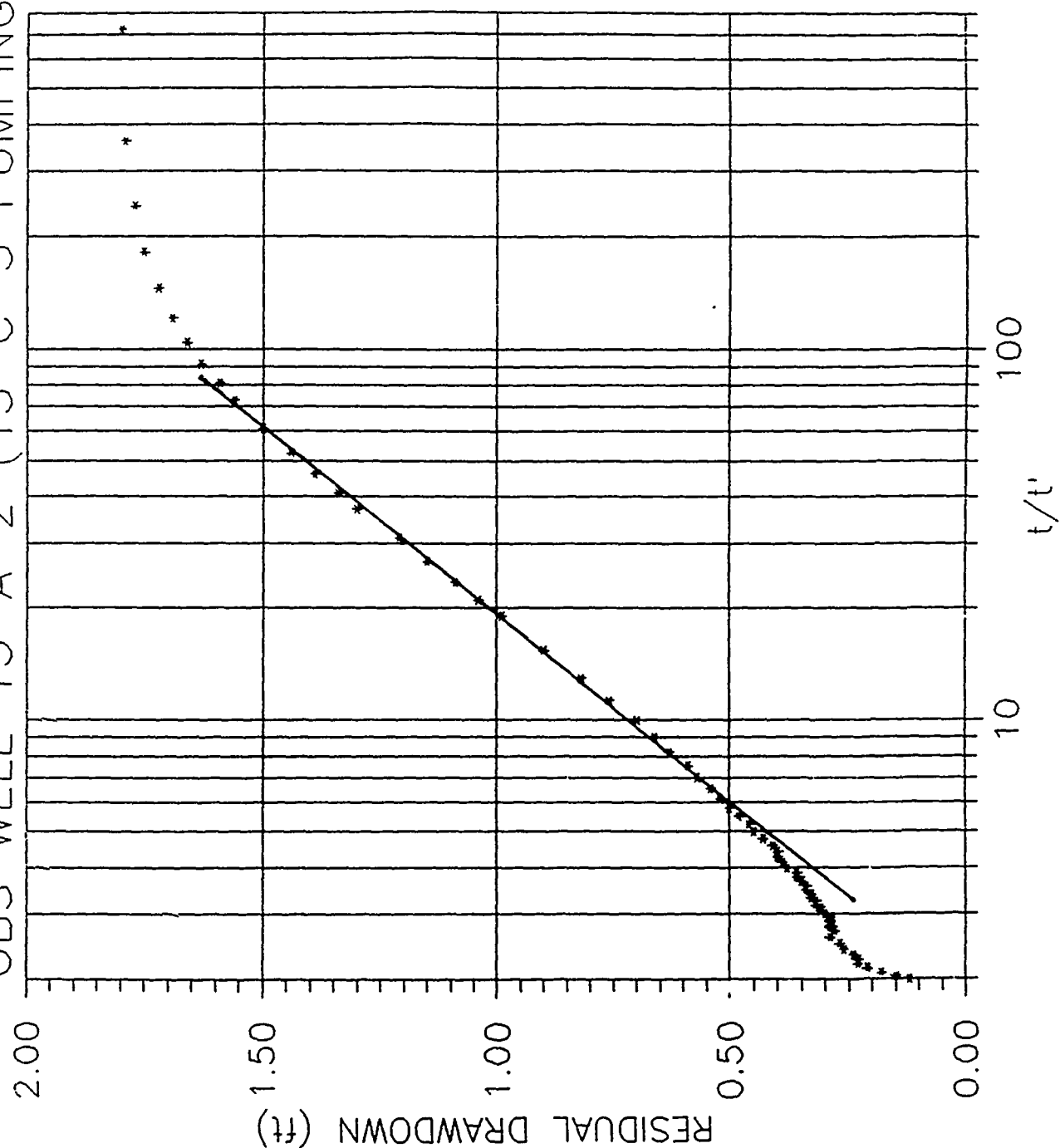
$$= 4.7 \times 10^{-4}$$

PUMP DRAWDOWN TEST: 2/16/89 OBS WELL 13-A-2 (13-C-3 PUMPING)



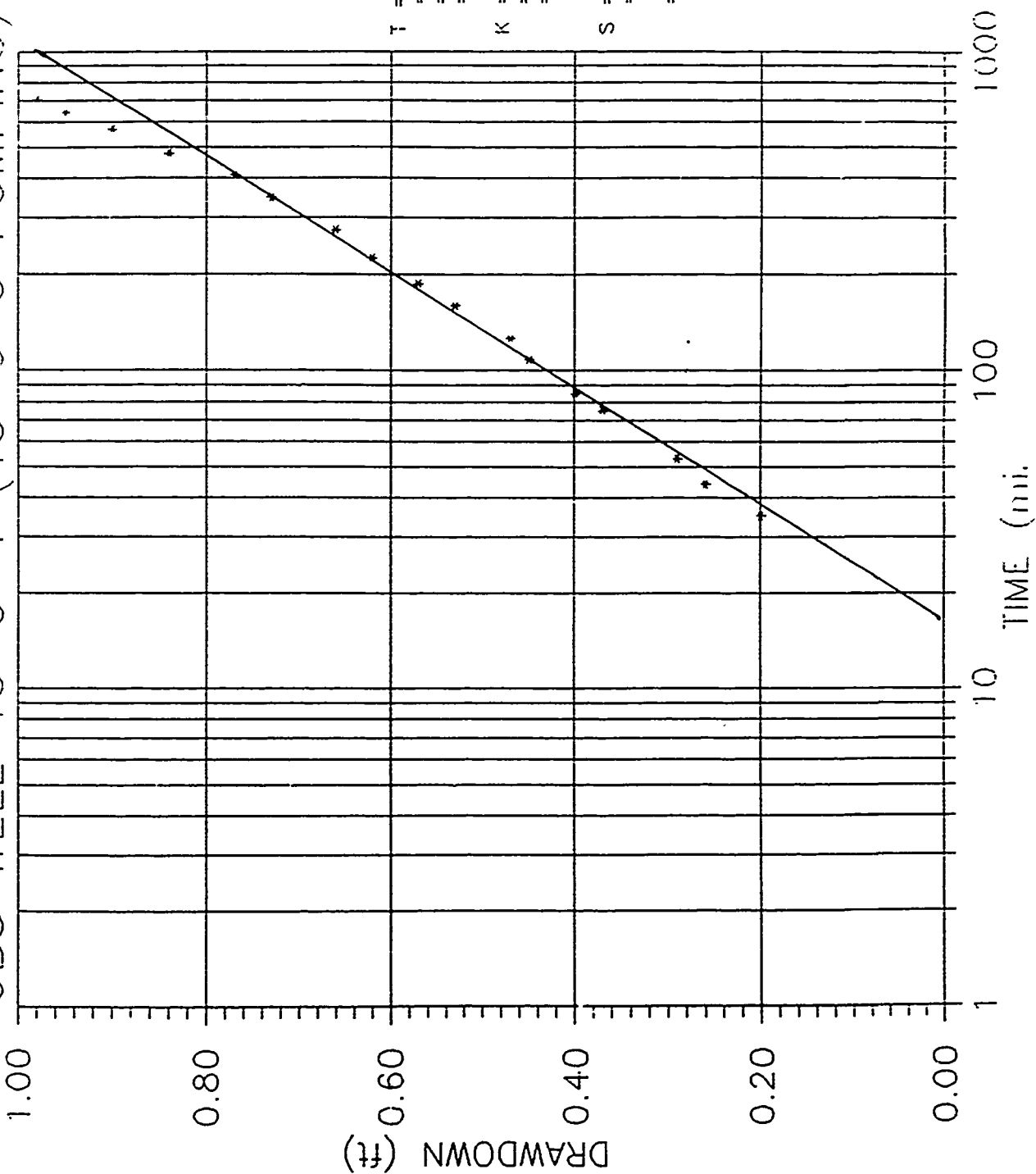
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(15.4 \text{ gpm}) / (0.95 \text{ ft})} \\
 &= \frac{4,300 \text{ gpd}}{570 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{570 \text{ ft}^2/\text{d}}{39 \text{ ft}} = 14.6 \text{ ft} \\
 S &= \frac{(2.25)(T)(t_0)}{(2.25)(0.40 \text{ ft}^2/\text{min})(11 \text{ min})} \\
 &= \frac{(101.57 \text{ ft})}{9.6 \times 10^{-4}}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/17/89 OBS WELL 13-A-2 (13-C-3 PUMPING)



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(15.4 \text{ gpm})/(1.0 \text{ ft}) \\
 &= 4,100 \text{ gpd/ft} \\
 &= 540 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (540 \text{ ft}^2/\text{d})/(14.6 \text{ ft}) \\
 &= 37 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/16/89 OBS WELL 13-C-4 (13-C-3 PUMPING)



$$T = \frac{(264)(Q)}{(AS)}$$

$$= \frac{(264)(15.4 \text{ gpm})}{(0.55 \text{ ft})}$$

$$= 7,400 \text{ gpd/ft}$$

$$= 990 \text{ ft}^2/\text{d}$$

$$K = \frac{T}{b}$$

$$= \frac{(990 \text{ ft}^2/\text{d})}{(18.8 \text{ ft})}$$

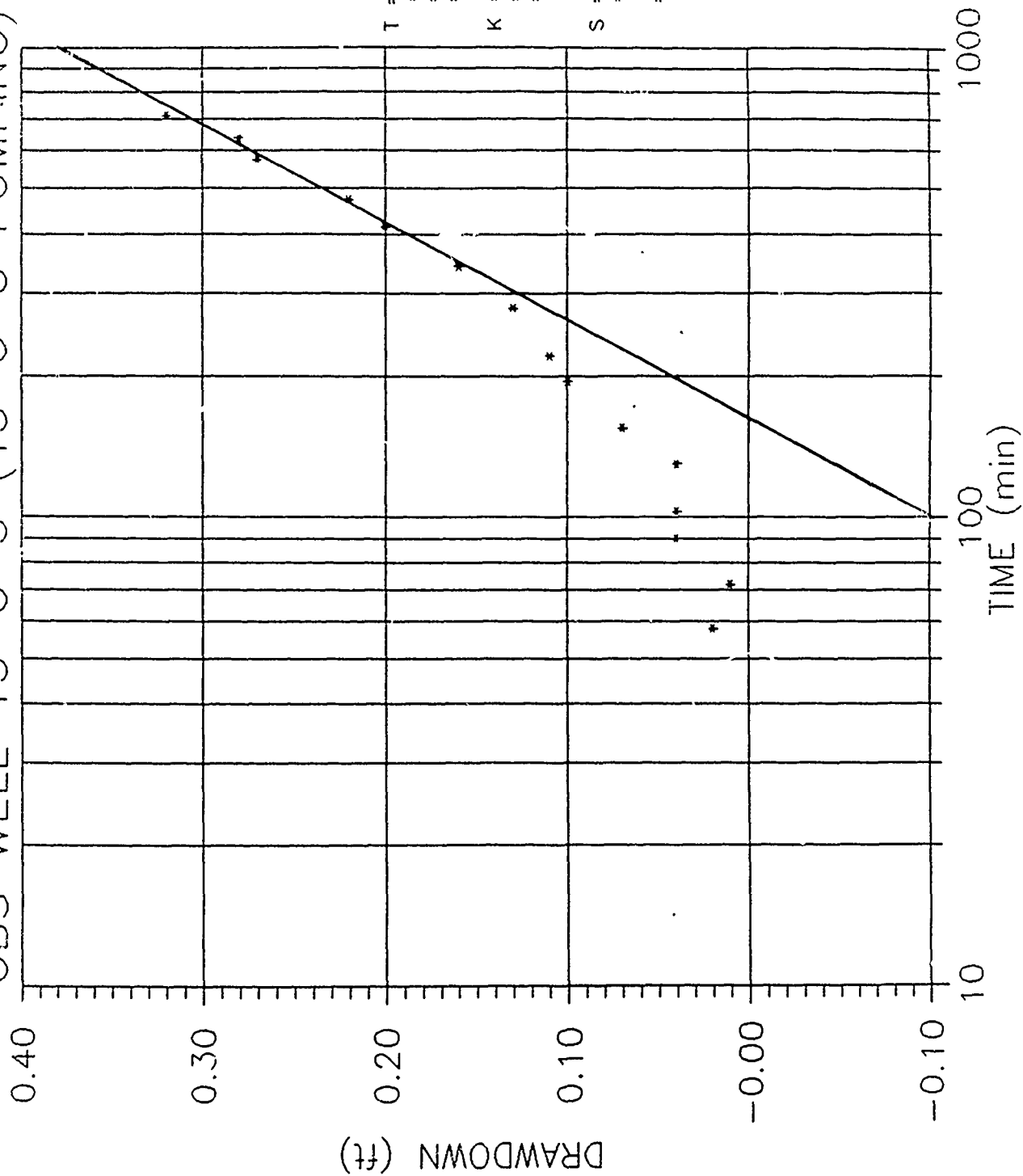
$$= 53 \text{ ft/d}$$

$$S = \frac{(2.25)(T)(t_0)}{(r^2)}$$

$$= \frac{(2.25)(990 \text{ ft}^2/\text{d})}{(219.36 \text{ ft})^2}$$

$$= 5.1 \times 10^{-4}$$

PUMP DRAWDOWN TEST: 2/16/89 OBS WELL 13-C-5 (13-C-3 PUMPING)



$$T = \frac{(264)(Q)}{(264)(15.4 \text{ gpm}) / (0.48 \text{ ft})}$$

$$= \frac{8,500 \text{ gpd}}{1,100 \text{ ft/d}}$$

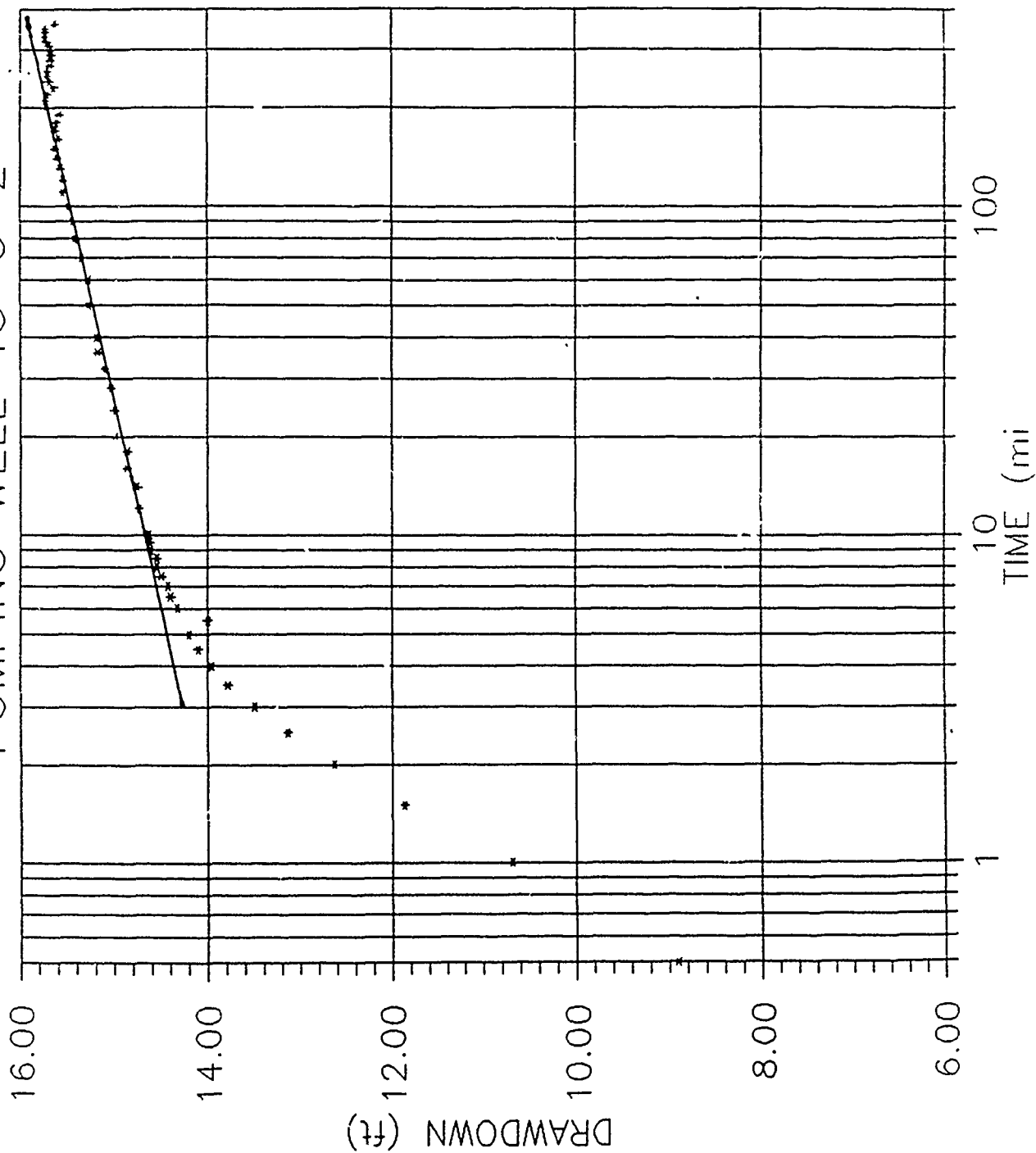
$$K = \frac{T/b}{(1,100 \text{ ft}^2/\text{d}) / (20 \text{ ft})}$$

$$= \frac{57 \text{ ft/d}}{57 \text{ ft/d}}$$

$$S = \frac{(2.25)(T)(t_0)}{(2.25)(0.79 \text{ ft}^2/\text{min}) (100 \text{ min})}$$

$$= \frac{(547.34 \text{ ft})}{5.9 \times 10^{-4}}$$

PUMP DRAWDOWN TEST: 2/21/89 PUMPING WELL 13-C-2



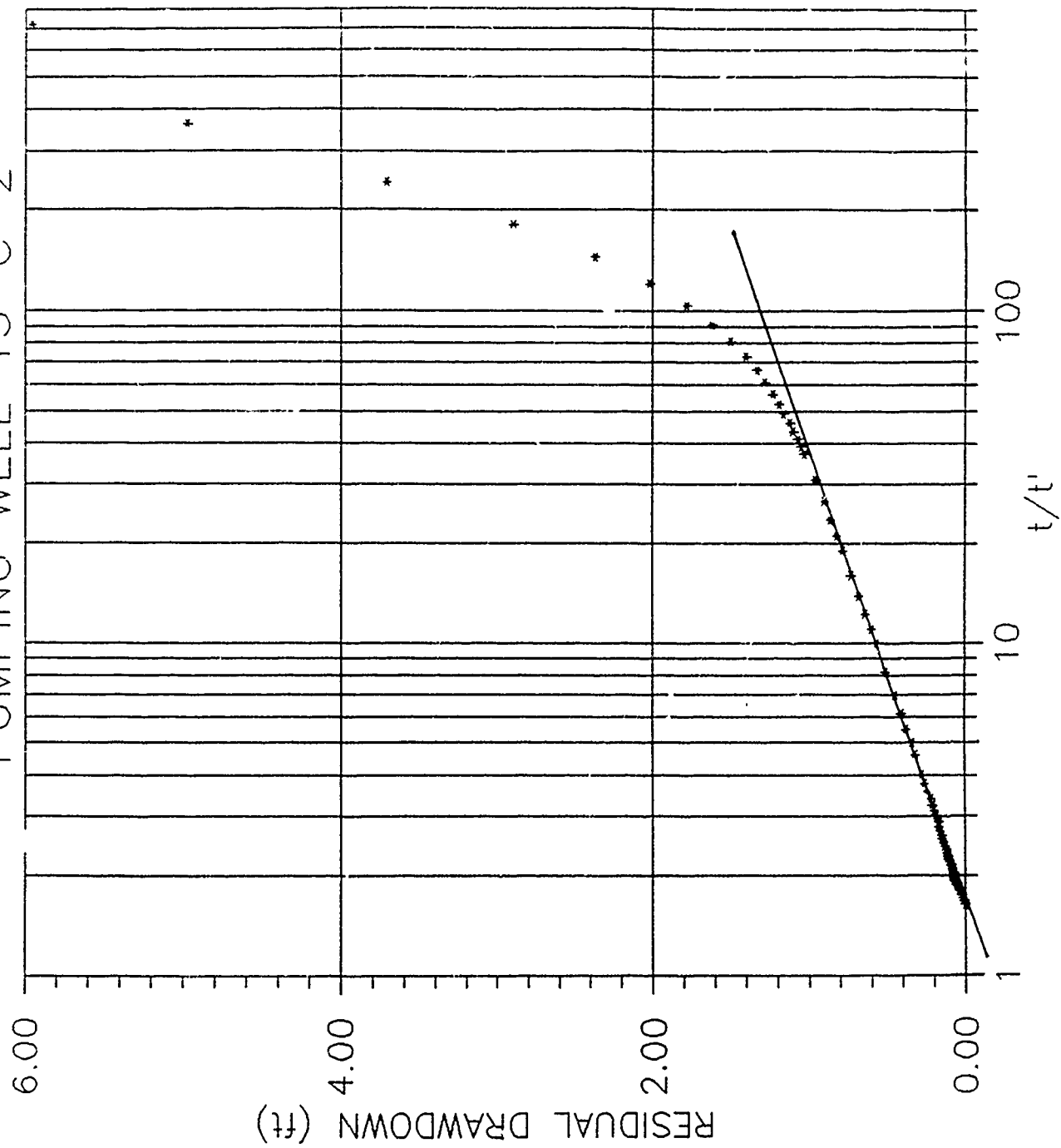
$$T = \frac{(264)(Q)(\Delta S)}{(264)(8.7 \text{ gpm})/(0.80 \text{ ft})}$$

$$= \frac{2,900 \text{ gpd/ft}}{380 \text{ ft}^2/\text{d}}$$

$$K = \frac{T/b}{(380 \text{ ft}^2/\text{d})/(20 \text{ ft})}$$

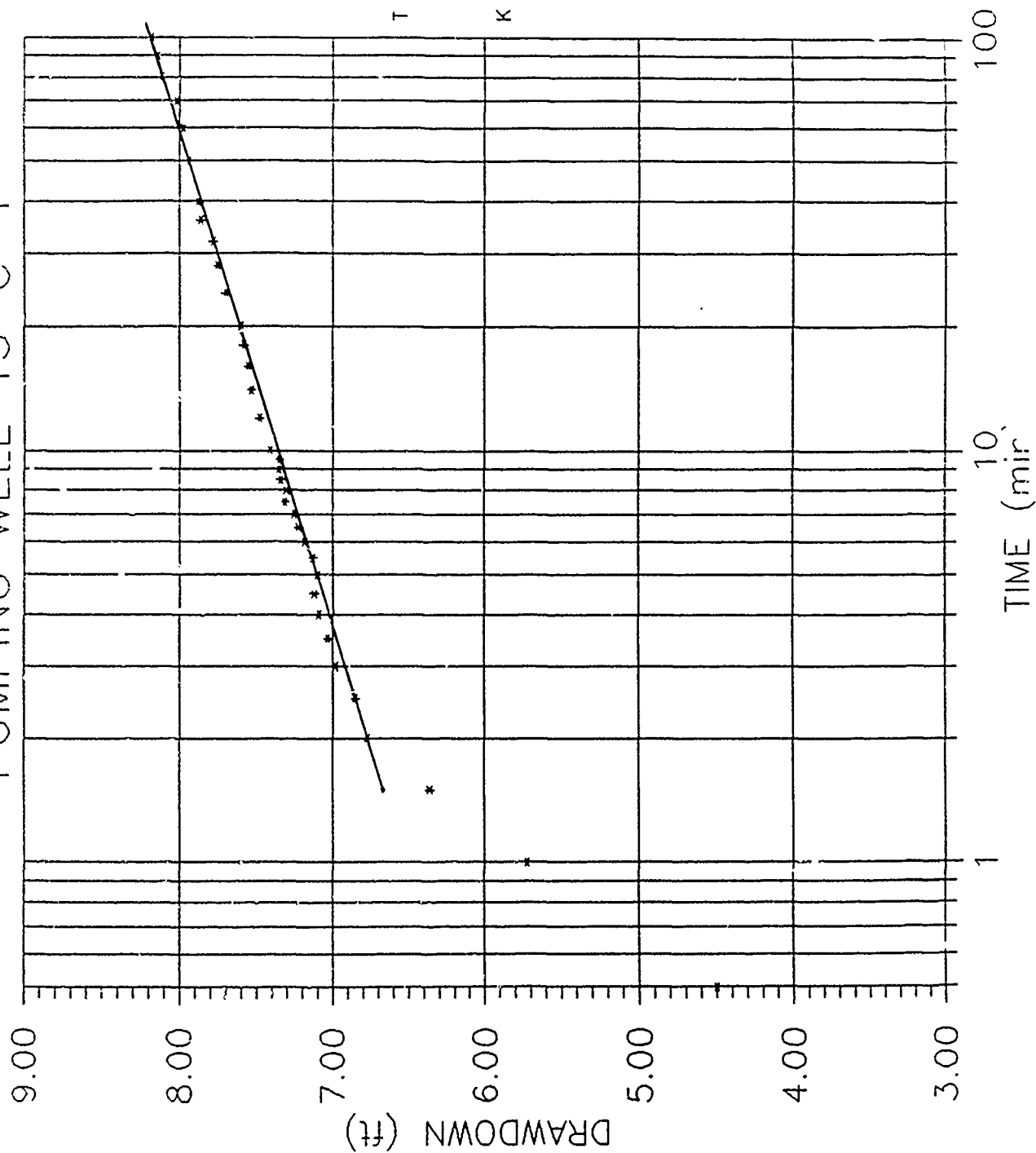
$$= \frac{19 \text{ ft/d}}{19 \text{ ft/d}}$$

PUMP RECOVERY TEST: 2/21/89 PUMPING WELL 13-C-2



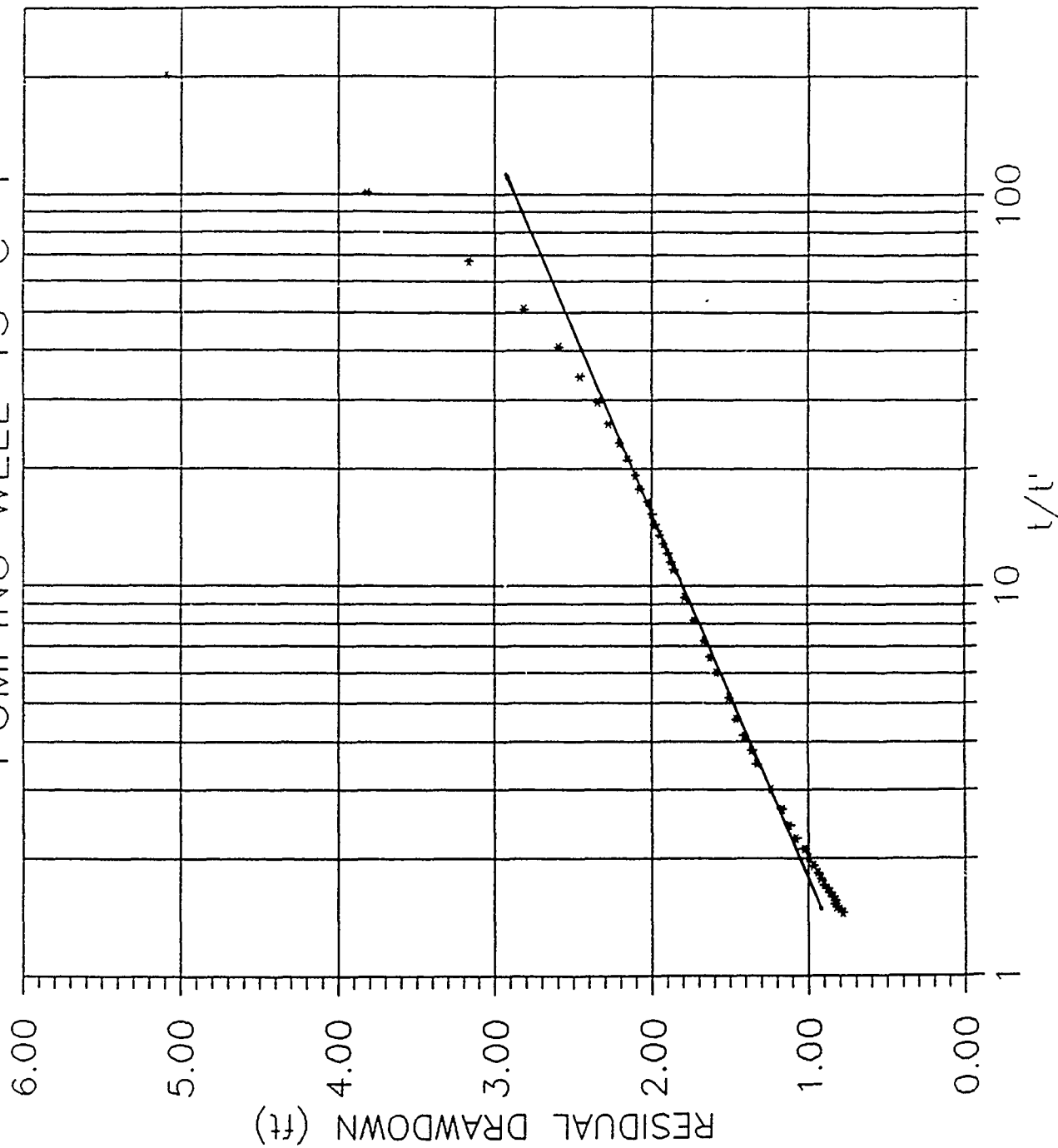
$$\begin{aligned}
 r &= \frac{(264)(Q)/(\Delta S)}{(264)(8.7 \text{ gpm})/(0.70 \text{ ft})} \\
 &= \frac{3,300 \text{ gpd/ft}}{440 \text{ ft/d}} \\
 K &= \frac{T/b}{(440 \text{ ft}^2/\text{d})/(20 \text{ ft})} \\
 &= \frac{22 \text{ ft/d}}{22 \text{ ft/d}}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/24/89 PUMPING WELL 13-C-1



$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(6.5 \text{ gpm}) / (0.85 \text{ ft})} \\
 &= \frac{2,000 \text{ gpd/ft}}{270 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} = \frac{(270 \text{ ft}^2/\text{d}) / (20 \text{ ft})}{13.5 \text{ ft/d}}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/24/89 PUMPING WELL 13-C-1



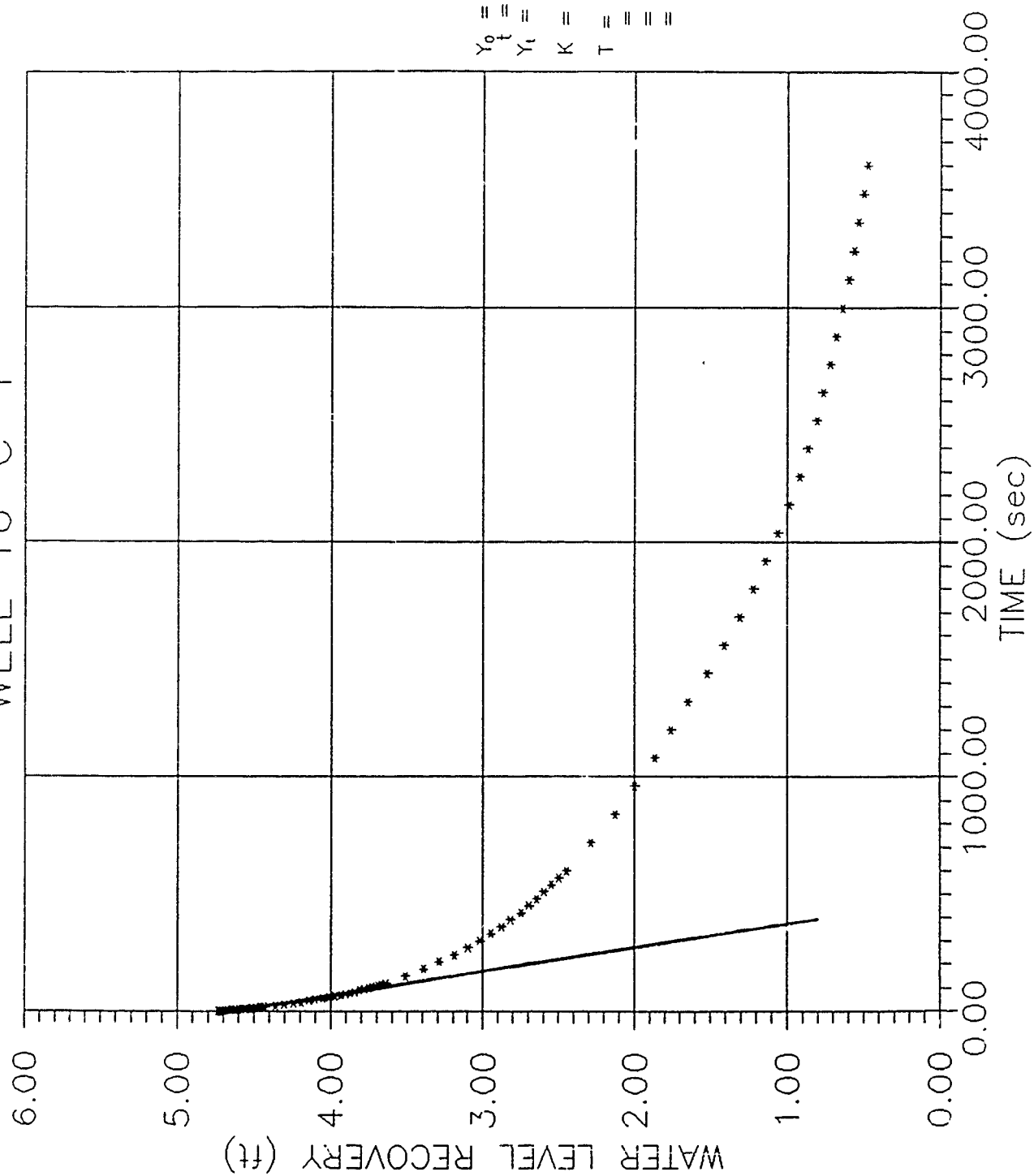
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(6.5 \text{ gpm})}{(1.0 \text{ ft})} \\
 &= 1,716 \text{ gpd/ft} \\
 &= 230 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(230 \text{ ft}^2/\text{d})}{(20 \text{ ft})} \\
 &= 11.5 \text{ ft/d}
 \end{aligned}$$

SITE 16

EXPLOSIVE ORDNANCE DISPOSAL (EOD) AREA

Slug Test Plots

SLUG TEST: 1/31/89 WELL 16--C-1



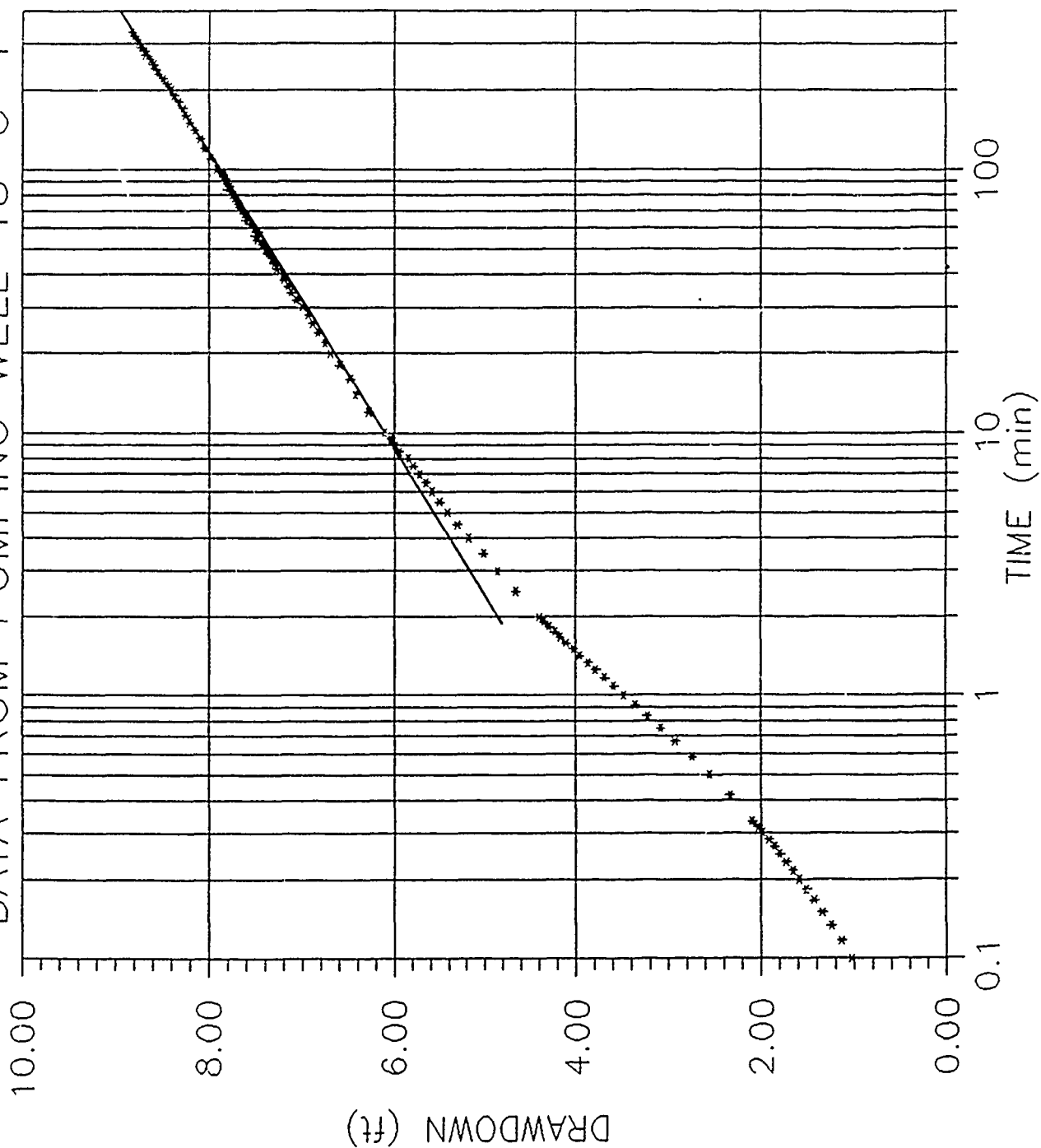
$Y_0 = 4.75$ ft
 $t = 200$ sec
 $Y_1 = 2.65$ ft
 $K = 1.2$ ft/day
 $T = (K)(b)$
 $= (1.2 \text{ ft/day})(19.6 \text{ ft})$
 $= 23.5 \text{ ft}^2/\text{day}$
 $= 170 \text{ gpd/ft}$

SITE 18

BULK FUEL STORAGE FACILITY

Pump Test Plots

PUMP DRAWDOWN TEST: 2/13/89 DATA FROM PUMPING WELL 18-C-1



DRAWDOWN (ft)

TIME (min)

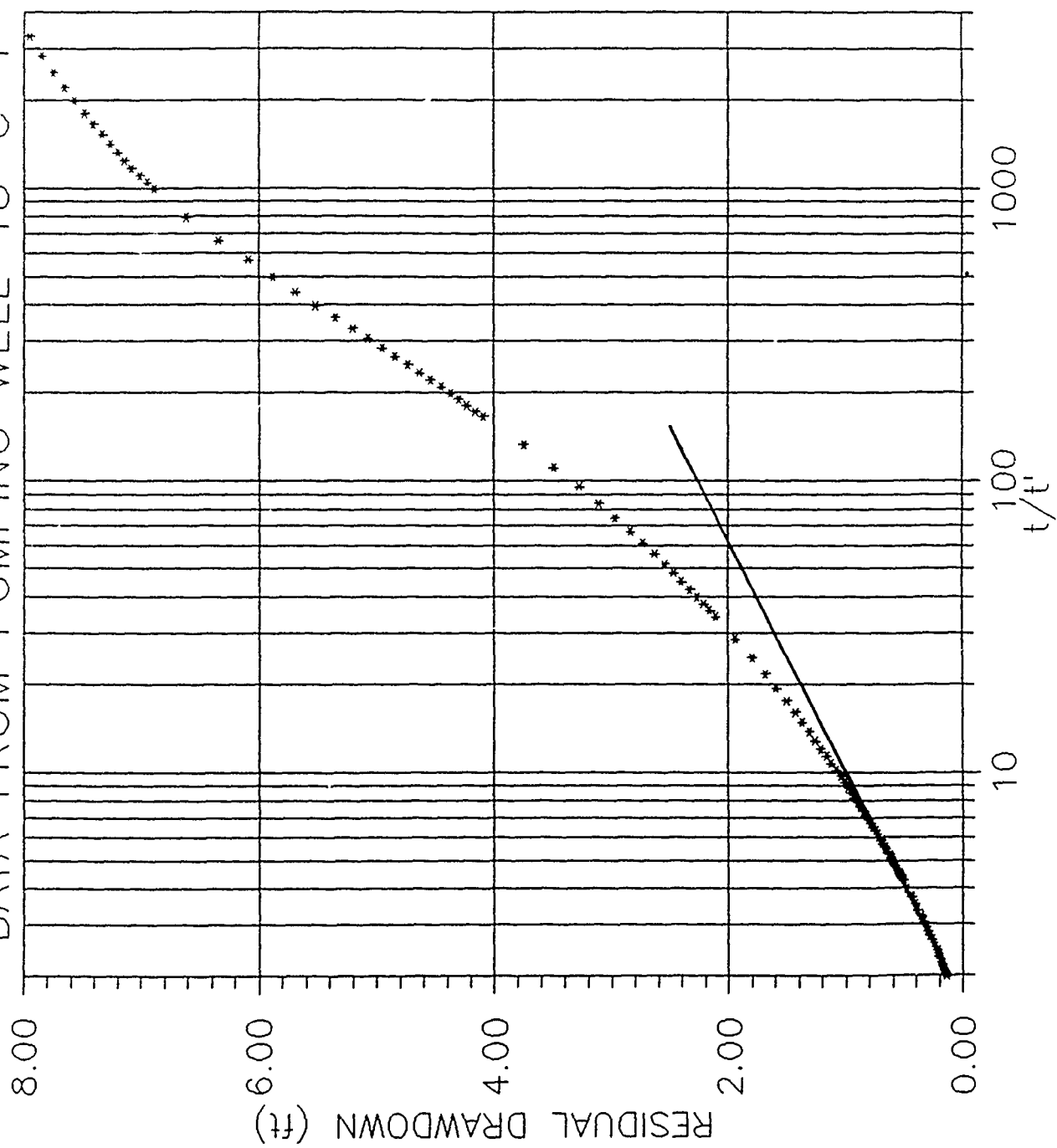
$$T = \frac{(264)(Q)}{(\Delta S)}$$

$$= \frac{(264)(16.1 \text{ gpm})}{(1.75 \text{ ft})}$$

$$= \frac{2,400 \text{ gpd/ft}}{320 \text{ ft/d}}$$

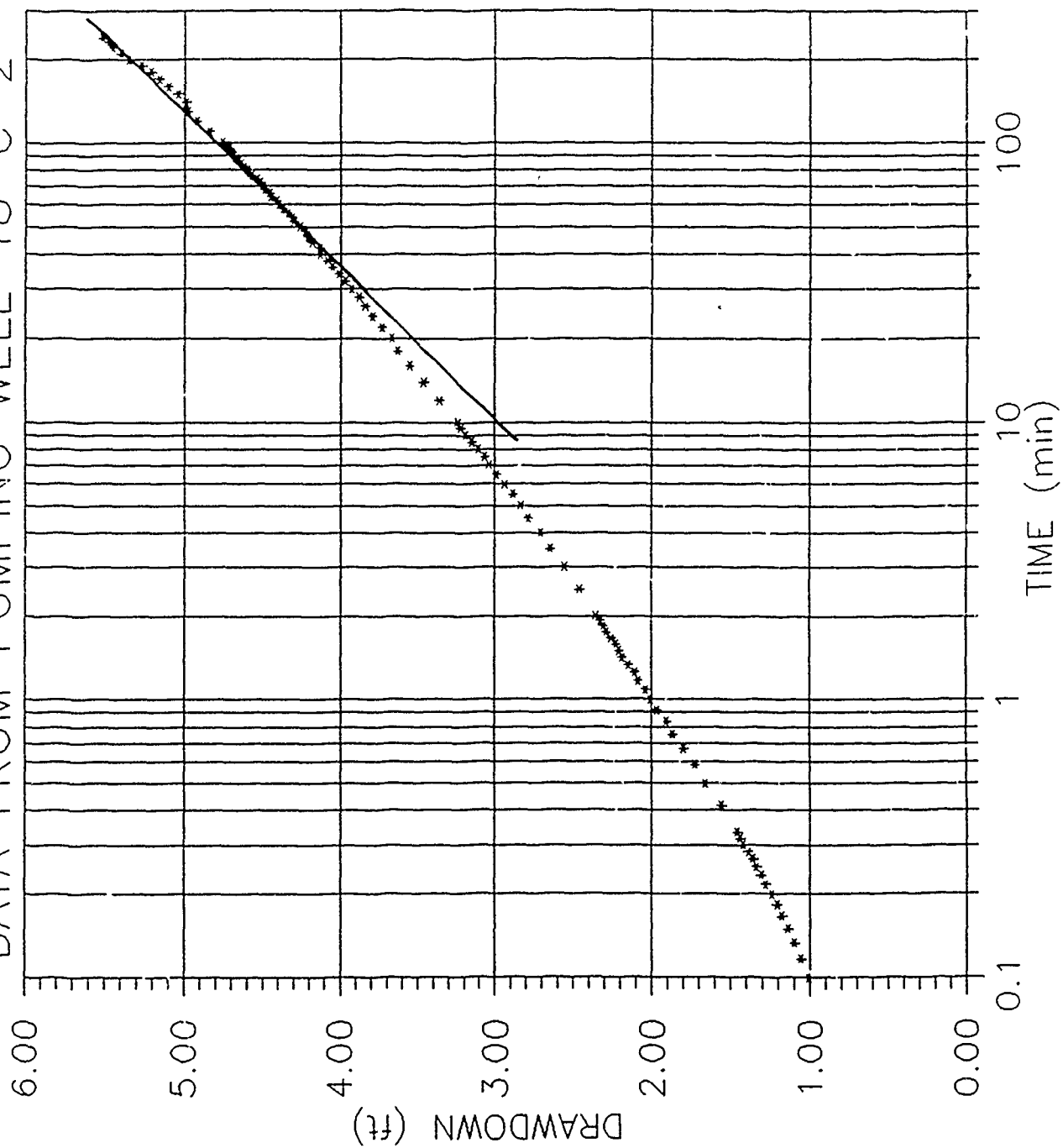
$$K = \frac{T/b}{\left(\frac{320 \text{ ft}^2/\text{d}}{(14.1 \text{ ft})} \right)}$$

PUMP RECOVERY TEST: 2/13/89 DATA FROM PUMPING WELL 18-C-1



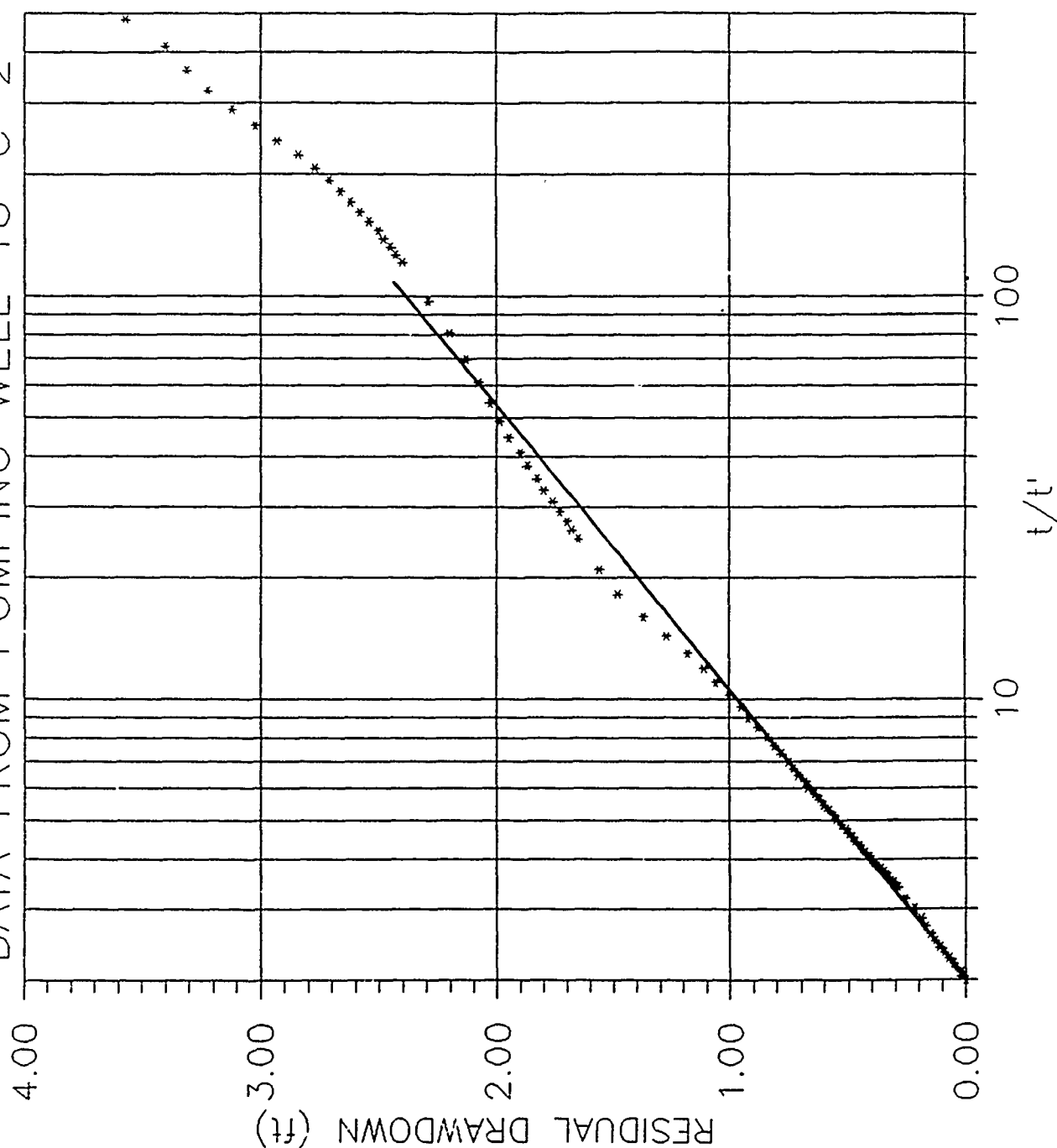
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(16.1 \text{ gpm})}{(2.1 \text{ ft})} \\
 &= 2,000 \text{ gpd/ft} \\
 &= 270 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(270 \text{ ft}^2/\text{d})}{(14.1 \text{ ft})} \\
 &= 19 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/10/89 DATA FROM PUMPING WELL 18-C-2



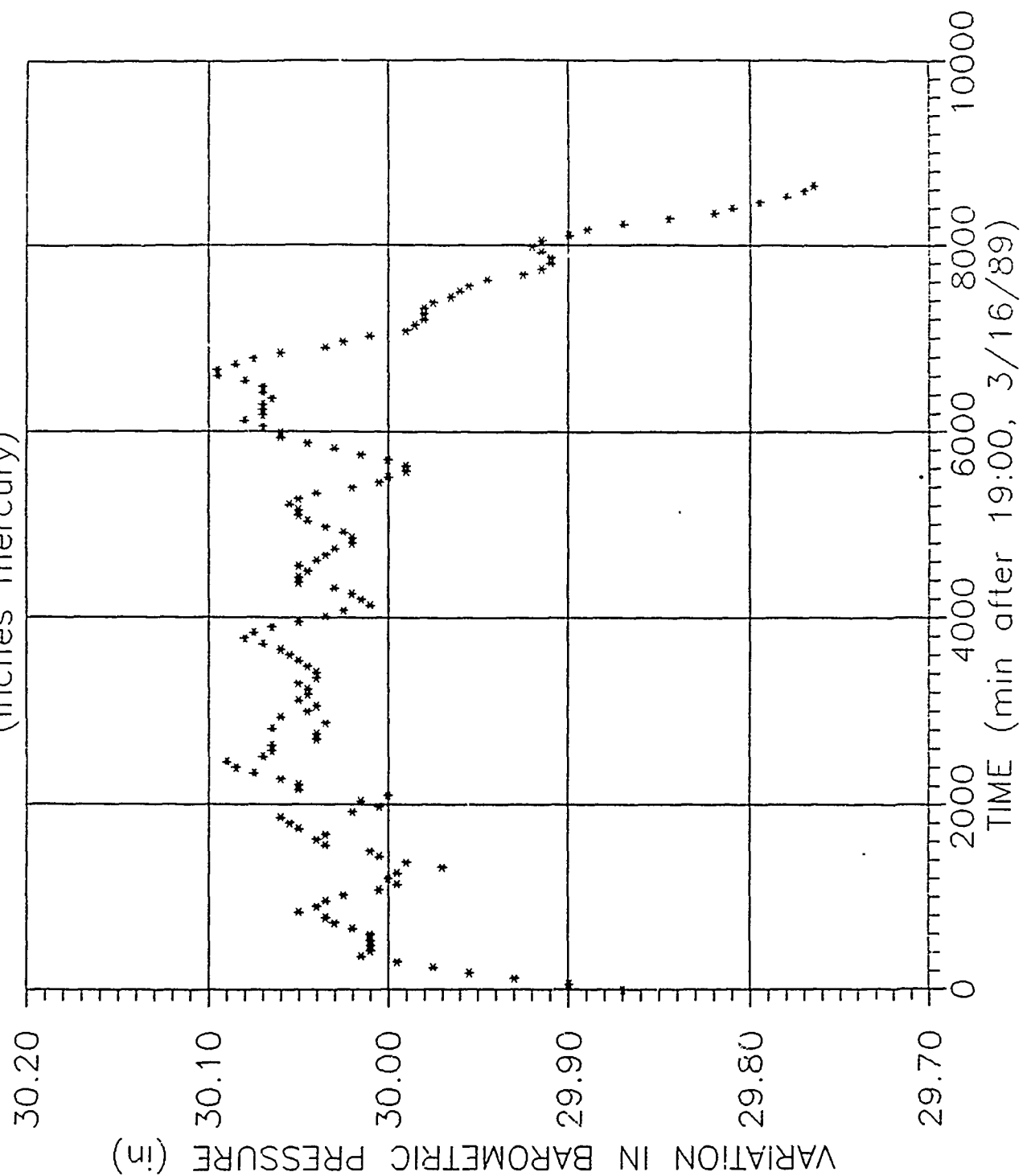
$$\begin{aligned}
 T &= \frac{(264)(Q)(\mu)}{(\Delta S)} \\
 &= \frac{(264)(12.9 \text{ gpm})}{(2.0 \text{ ft})} \\
 &= 1,700 \text{ gpd/ft} \\
 &= 230 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(230 \text{ ft}^2/\text{d})}{(9.7 \text{ ft})} \\
 &= 24 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/10/89 DATA FROM PUMPING WELL 18-C-2

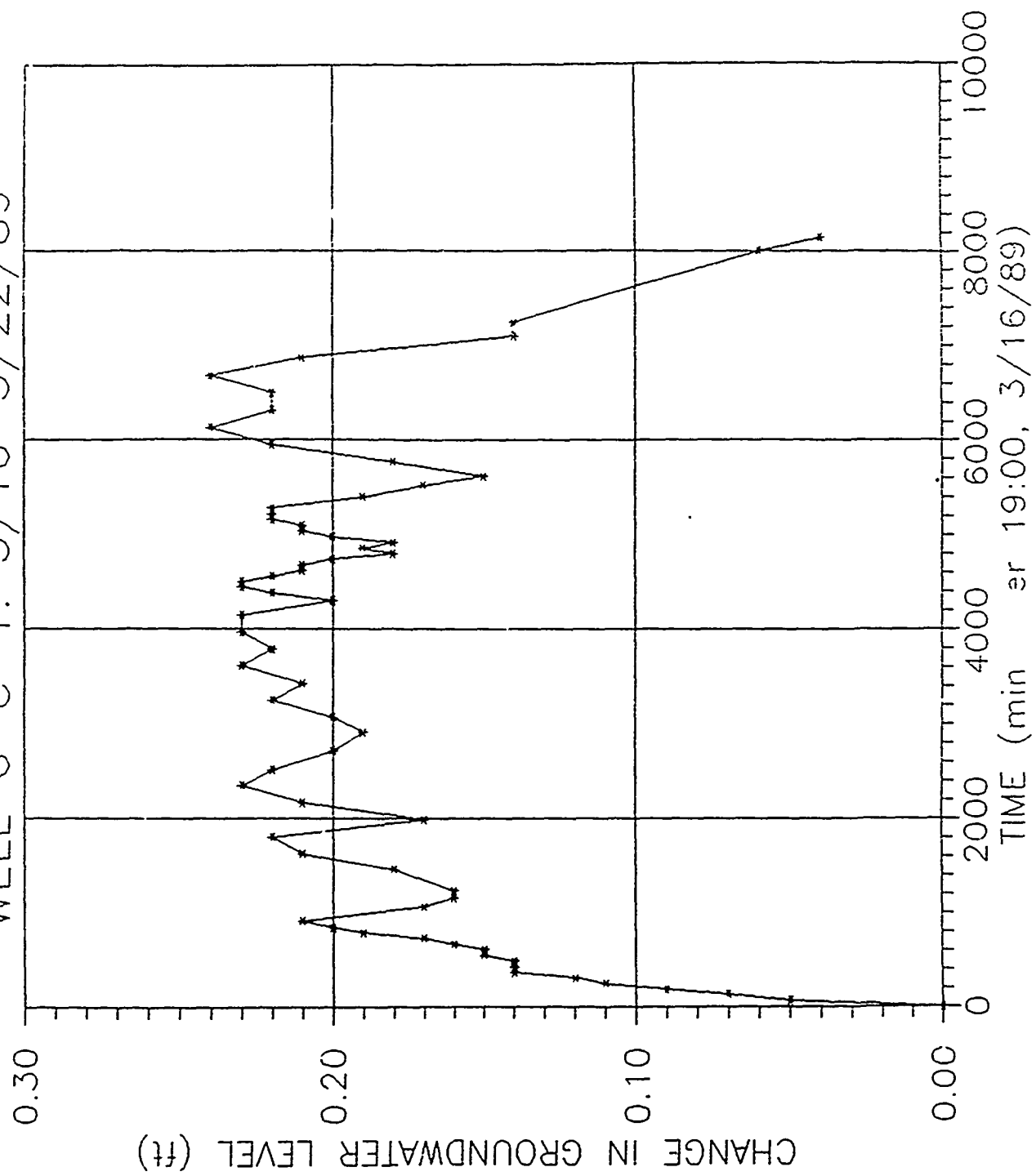


$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(12.9 \text{ gpm})/(1.4 \text{ ft}) \\
 &= 2,400 \text{ gpd/ft} \\
 &= 330 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (330 \text{ ft}^2/\text{d})/(9.7 \text{ ft}) \\
 &= 34 \text{ ft/d}
 \end{aligned}$$

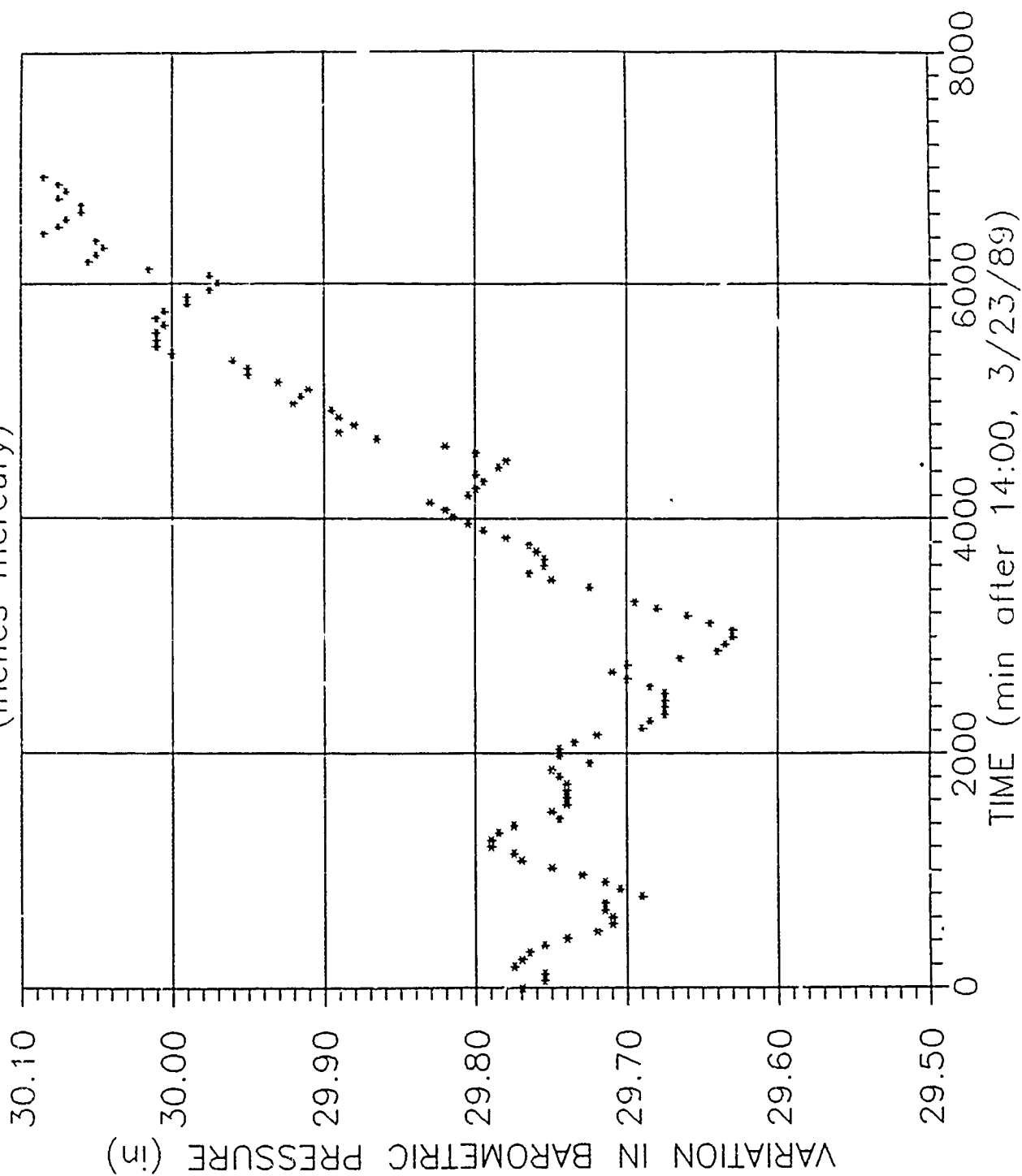
BAROMETRIC PRESSURE: 3/16-3/22/89
(inches mercury)



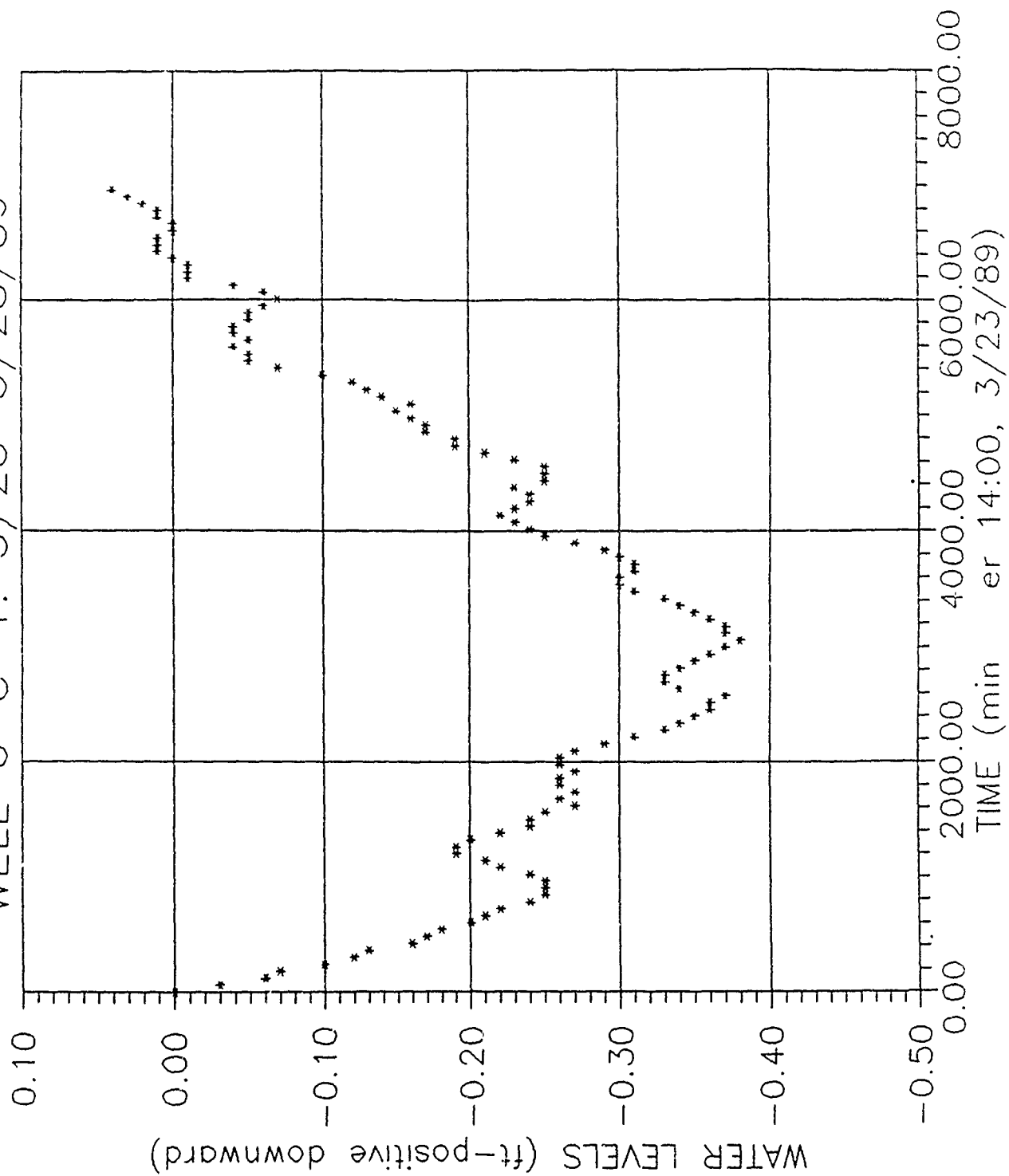
WATER LEVEL FLUCTUATIONS WELL 6-C-1: 3/16-3/22/89



BAROMETRIC PRESSURE: 3/23-3/28/89 (inches mercury)



WATER LEVEL FLUCTUATIONS WELL 6-C-1: 3/23-3/28/89

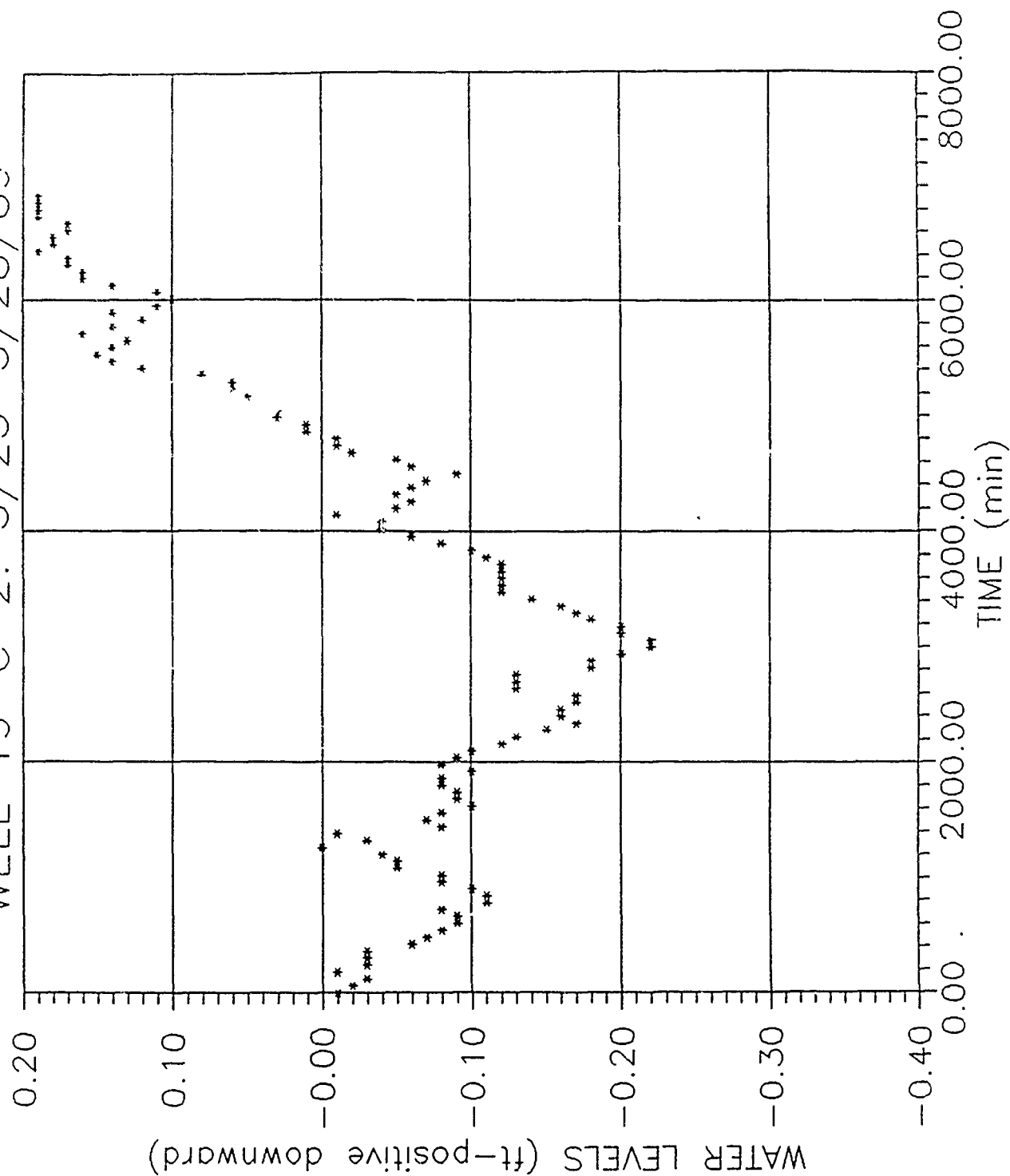


SITE 19

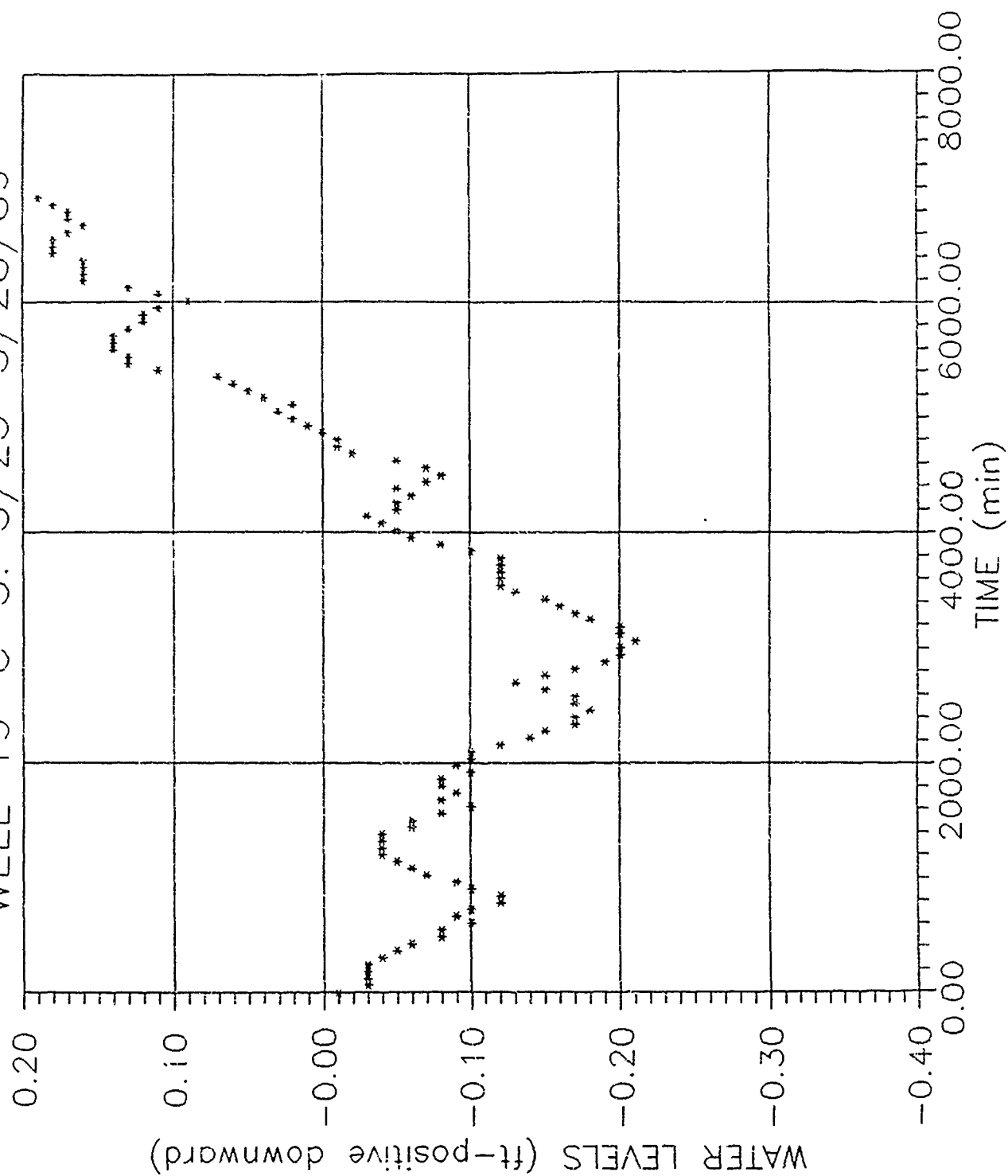
PHOTOWASTE EMERGENCY HOLDING BASIN

Pump Test Plots

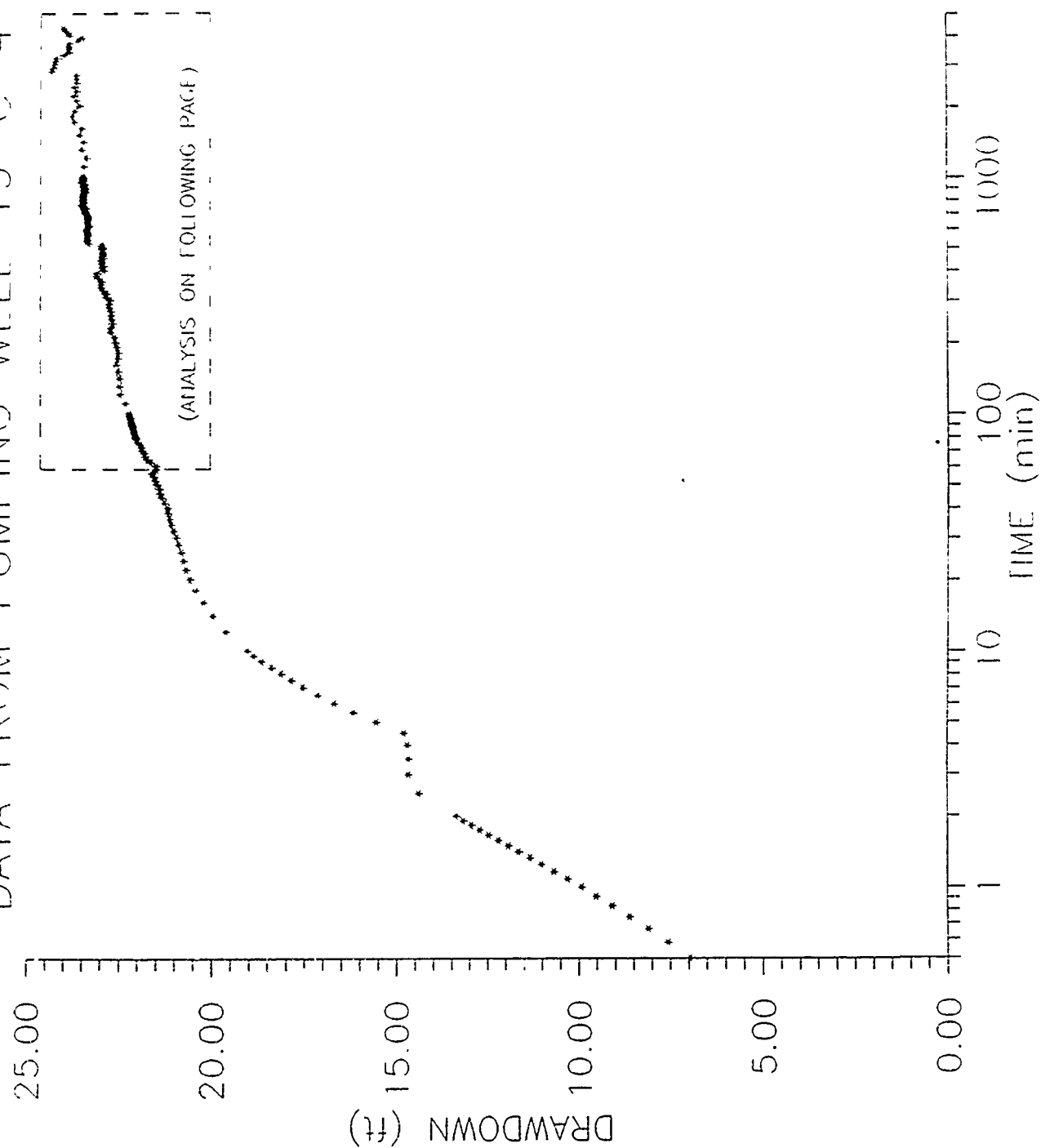
WATER LEVEL FLUCTUATIONS WELL 19-C-2: 3/23-3/28/89



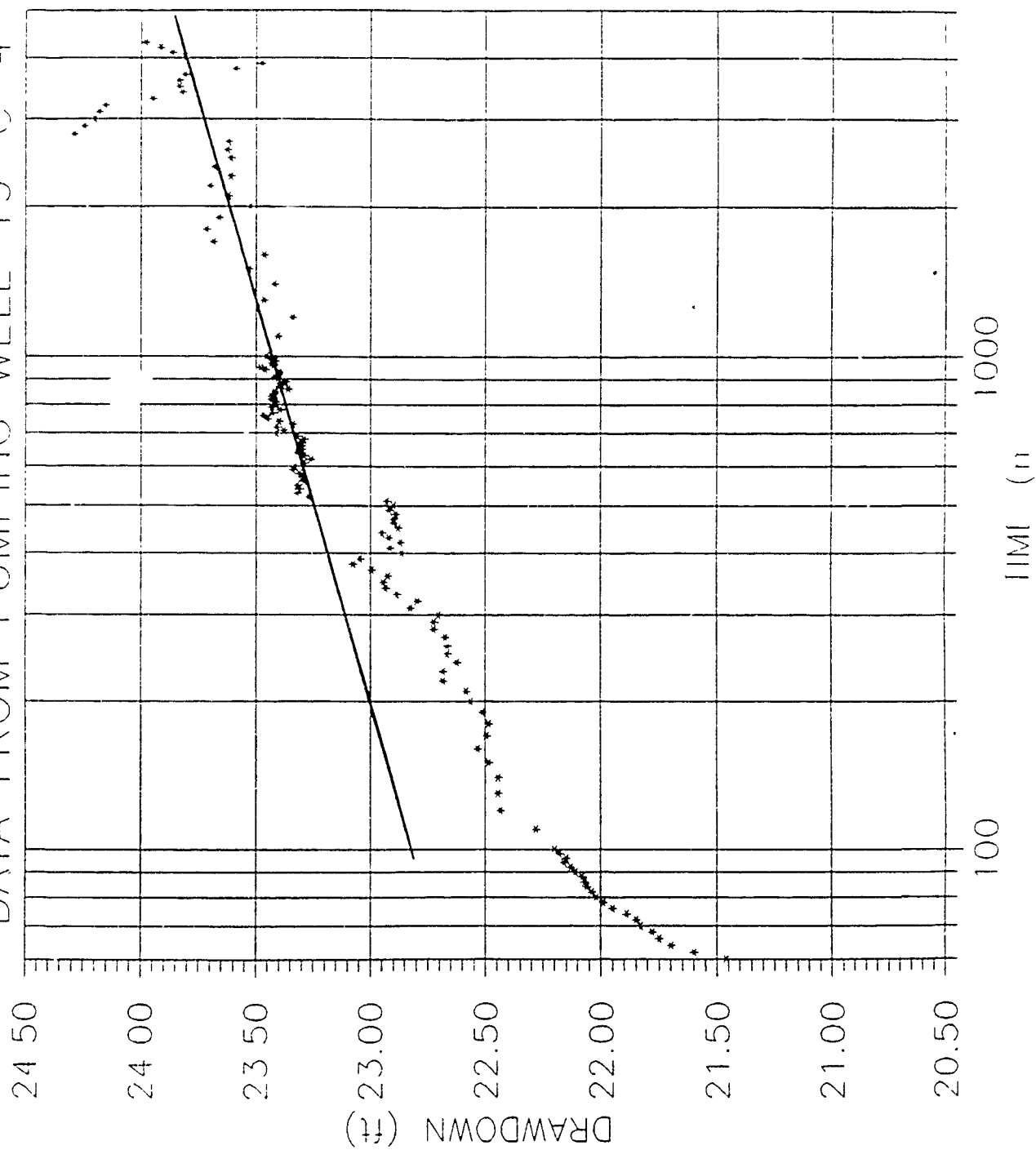
WATER LEVEL FLUCTUATIONS WELL 19-C-3: 3/23-3/28/89



PUMP DRAWDOWN TEST: 3/16--3/19/89
DATA FROM PUMPING WELL 19--C--4

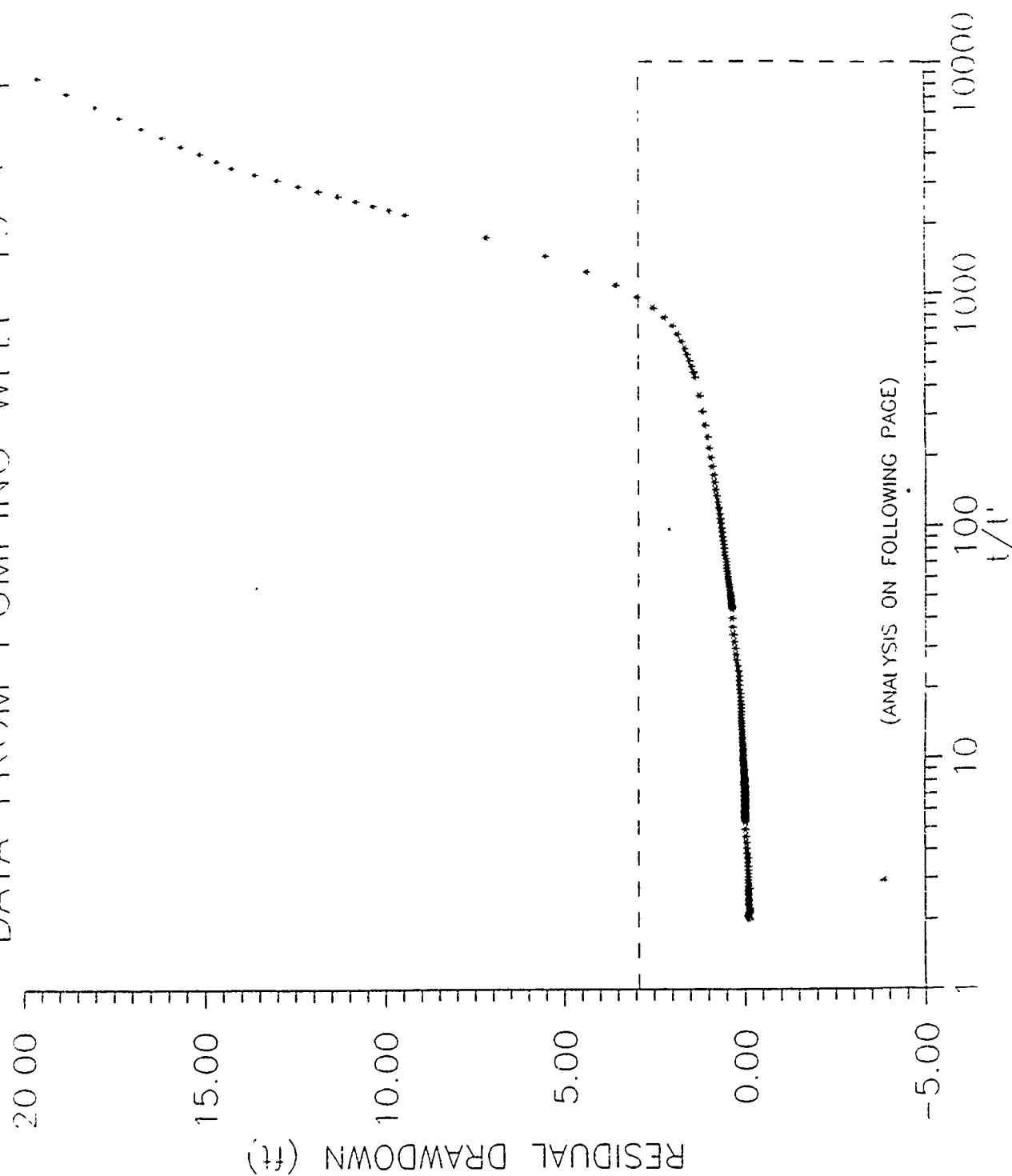


PUMP DRAWDOWN TEST: 3/16-3/19/89 DATA FROM PUMPING WELL 19-C 4

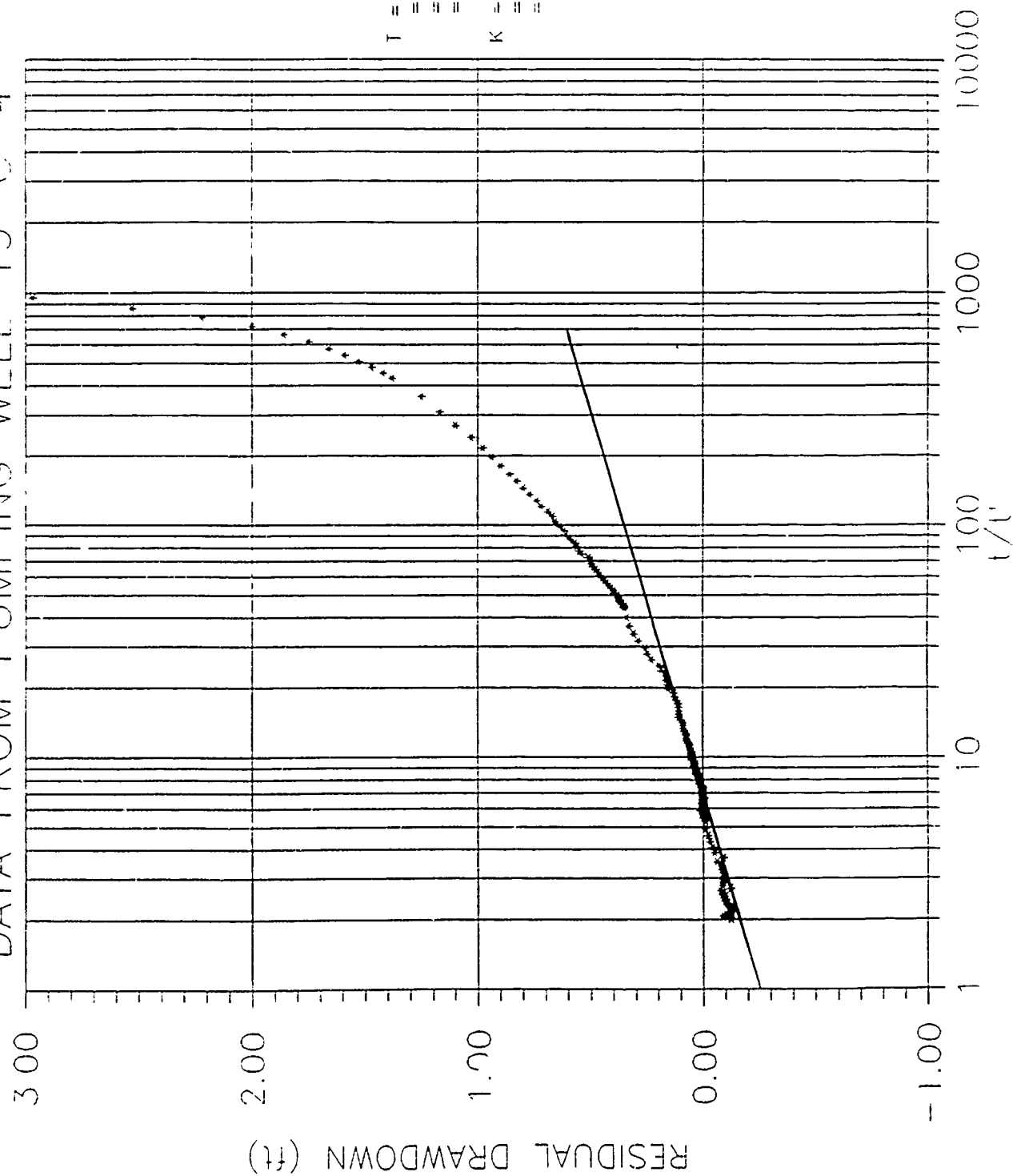


$$\begin{aligned} r &= (264)(Q)/(\Delta S) \\ &= (264)(22.8 \text{ gpm})/(0.6 \text{ ft}) \\ &= 10,000 \text{ gpd/ft} \\ &= 1,300 \text{ ft/d} \\ K &= r/b \\ &= (1,300 \text{ ft/d})/(60 \text{ ft}) \\ &= 22 \text{ ft/d} \end{aligned}$$

PUMP RECOVERY TEST: 3/19-3/22/89
 DATA FROM PUMPING WELL 19-C-4

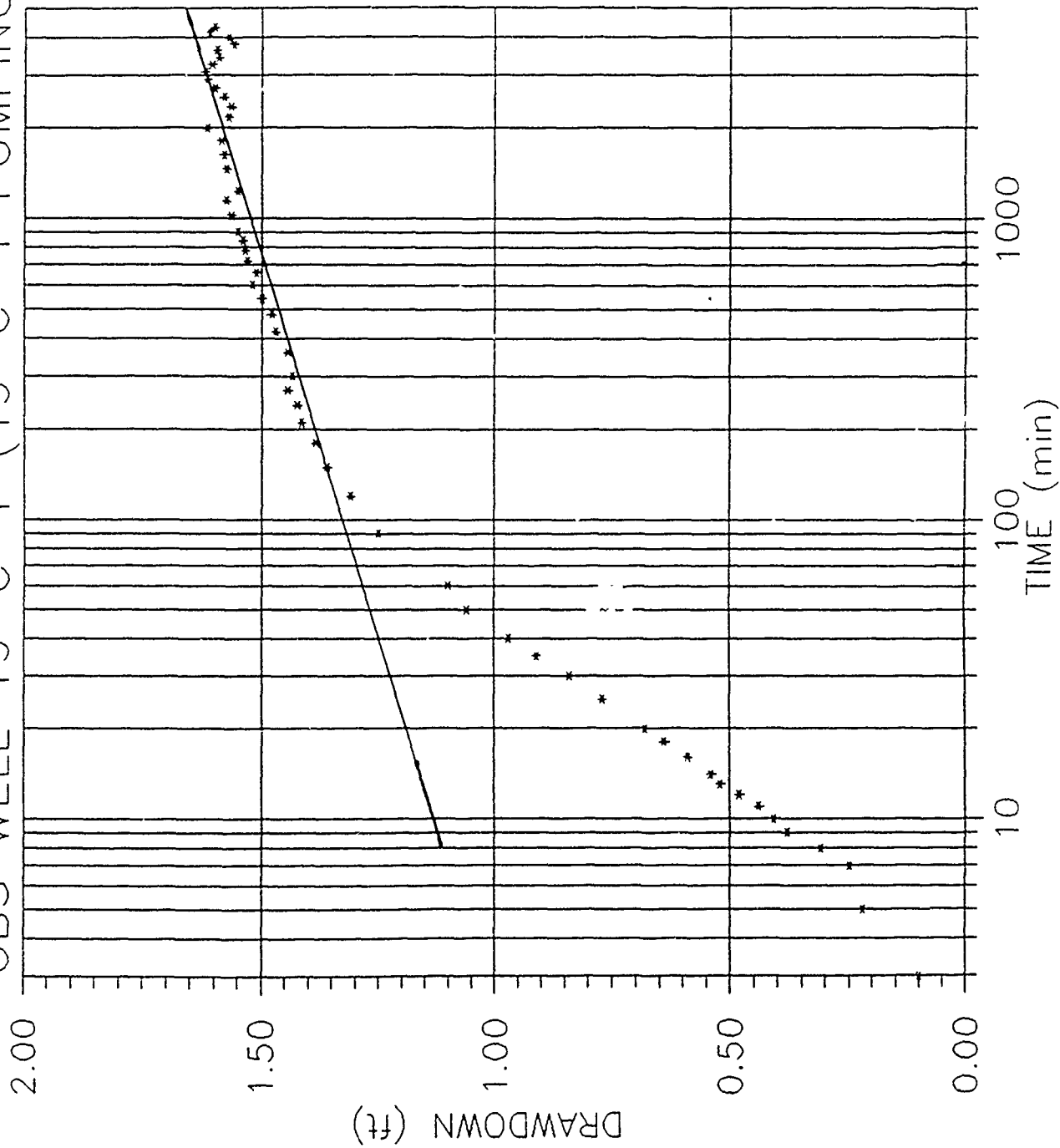


PUMP RECOVERY TEST: 3/19-3/22/89 DATA FROM PUMPING WELL 19-C-4



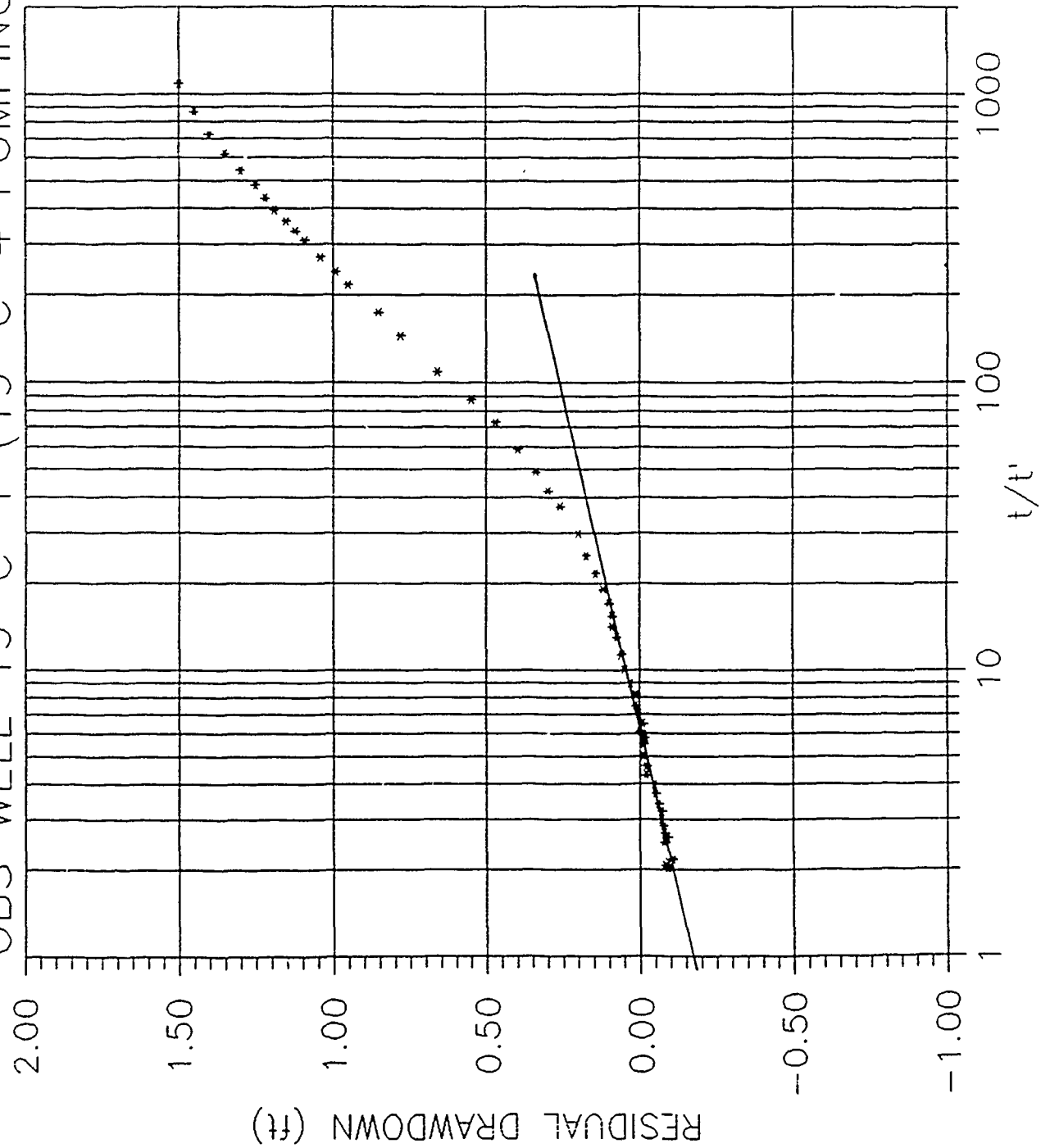
$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(22.8 \text{ gpm})/(0.4 \text{ ft}) \\
 &= 15,000 \text{ gpd/ft} \\
 &= 2,000 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (2,000 \text{ ft}^2/\text{d})/(60 \text{ ft}) \\
 &= 34 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 3/16-3/19/89 OBS WELL 19-C-1 (19-C-4 PUMPING)



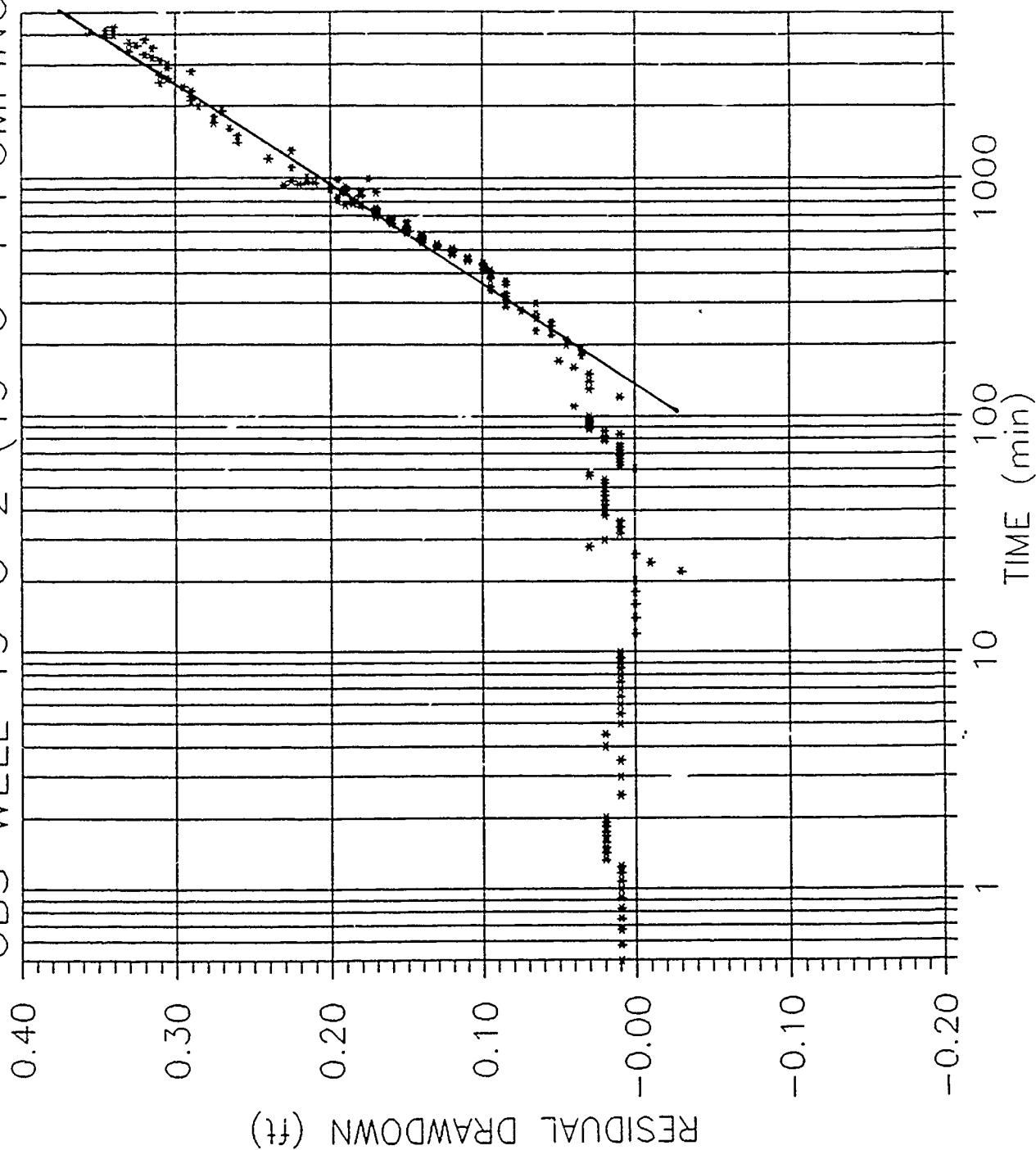
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(22.8 \text{ gpm})}{(0.20 \text{ ft})} \\
 &= 30,000 \text{ gpd/ft} \\
 &= 4,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(4,000 \text{ ft}^2/\text{d})}{(60 \text{ ft})} \\
 &= 67 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/19-3/22/89
OBS WELL 19-C-1 (19-C-4 PUMPING)



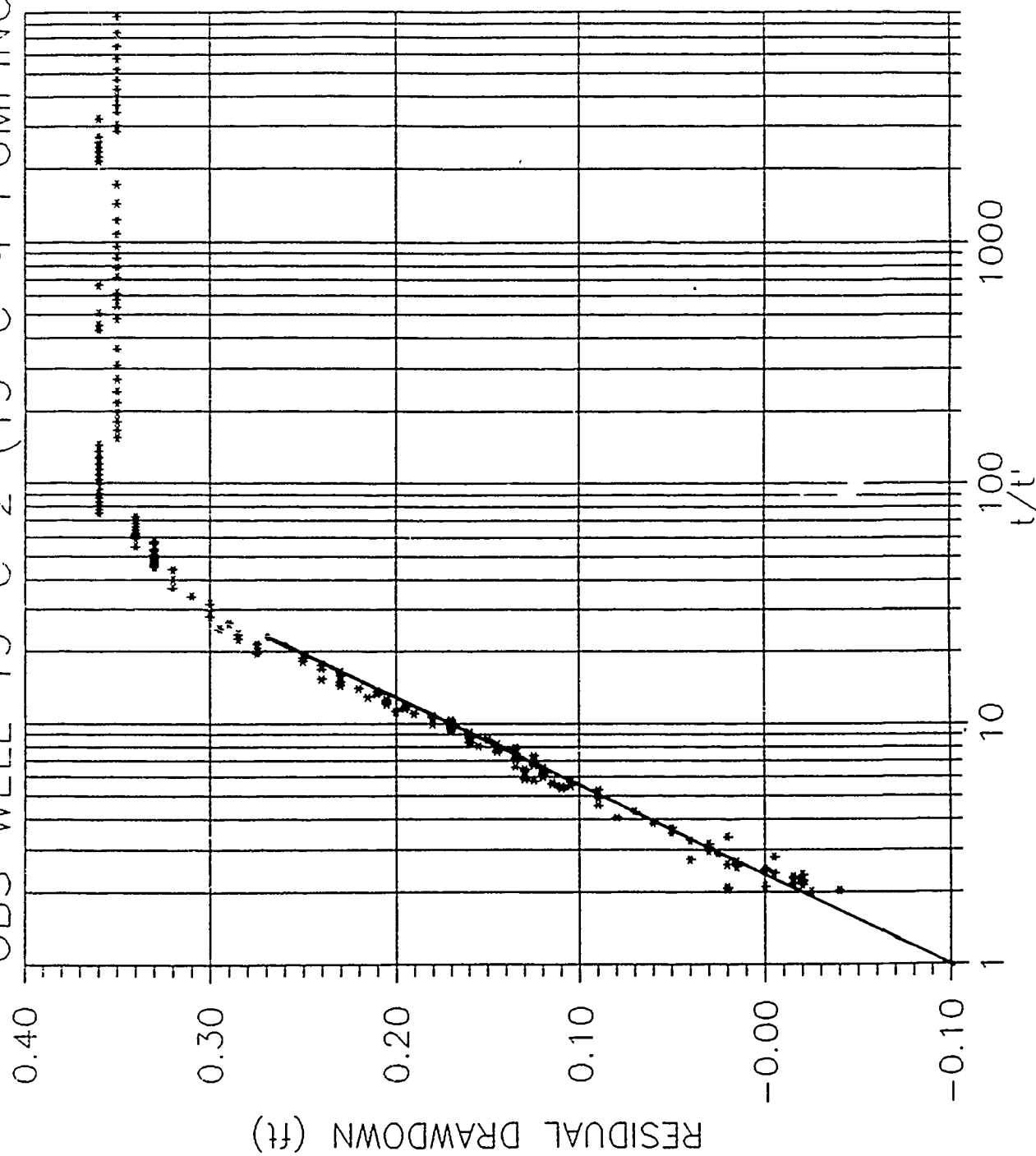
$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(22.8 \text{ gpm})/(0.20 \text{ ft}) \\
 &= 30,000 \text{ gpd/ft} \\
 &= 4,000 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (4,000 \text{ ft}^2/\text{d})/(60 \text{ ft}) \\
 &= 67 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 3/16-3/19/89 OBS WELL 19-C-2 (19-C-4 PUMPING)



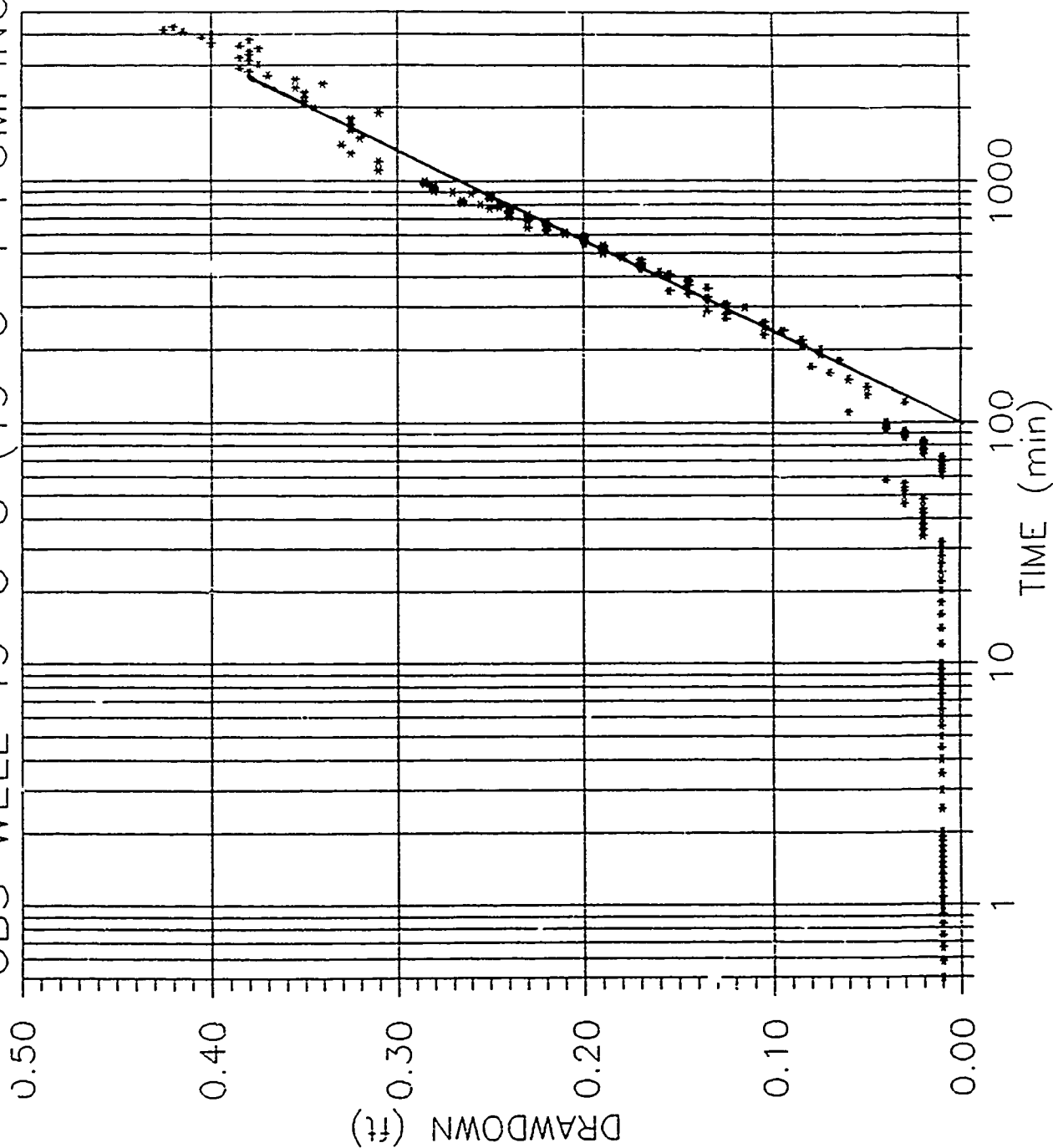
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(22.8 \text{ gpm}) / (0.24 \text{ ft})} \\
 &= \frac{25,000 \text{ gpd/ft}}{3,400 \text{ ft/d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(3,400 \text{ ft}^2/\text{d}) / (60 \text{ ft})}{56 \text{ ft/d}} \\
 S &= \frac{(2.75)(T)(t_0) / (r^2)}{(2.25)(2.3 \text{ ft}^2/\text{min}) (150 \text{ min}) /} \\
 &= \frac{(324.83 \text{ ft})^2}{7.4 \times 10^{-3}}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/19-3/22/89 OBS WELL 19-C-2 (19-C-4 PUMPING)



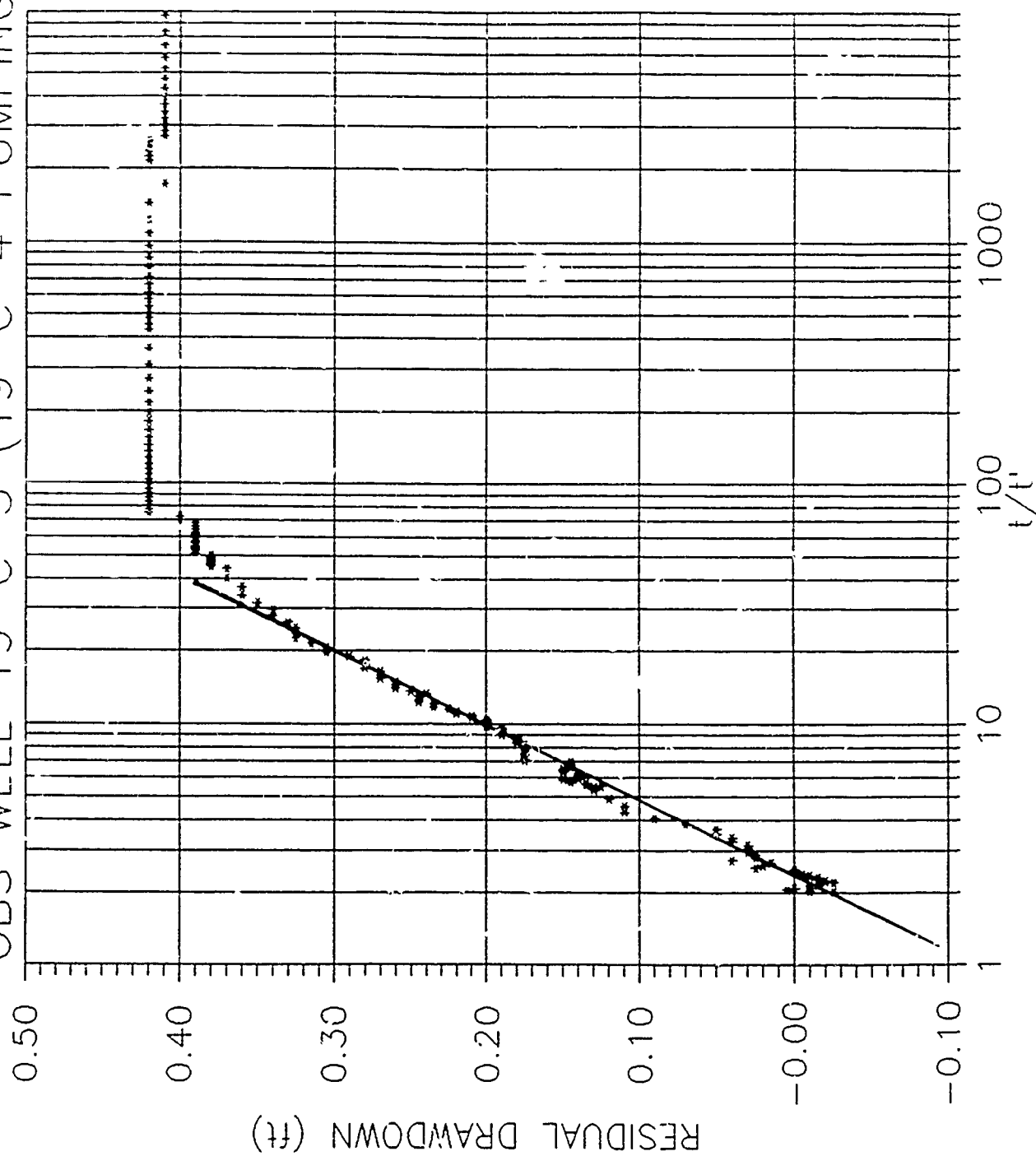
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(\Delta S)} \\
 &= \frac{(264)(22.8 \text{ gpm})}{(0.27 \text{ ft})} \\
 &= 22,000 \text{ gpd/ft} \\
 &= 3,000 \text{ ft}^2/\text{d} \\
 K &= \frac{T}{b} \\
 &= \frac{(3,000 \text{ ft}^2/\text{d})}{(60 \text{ ft})} \\
 &= 50 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 3/16-3/19/89 OBS WELL 19-C-3 (19-C-4 PUMPING)



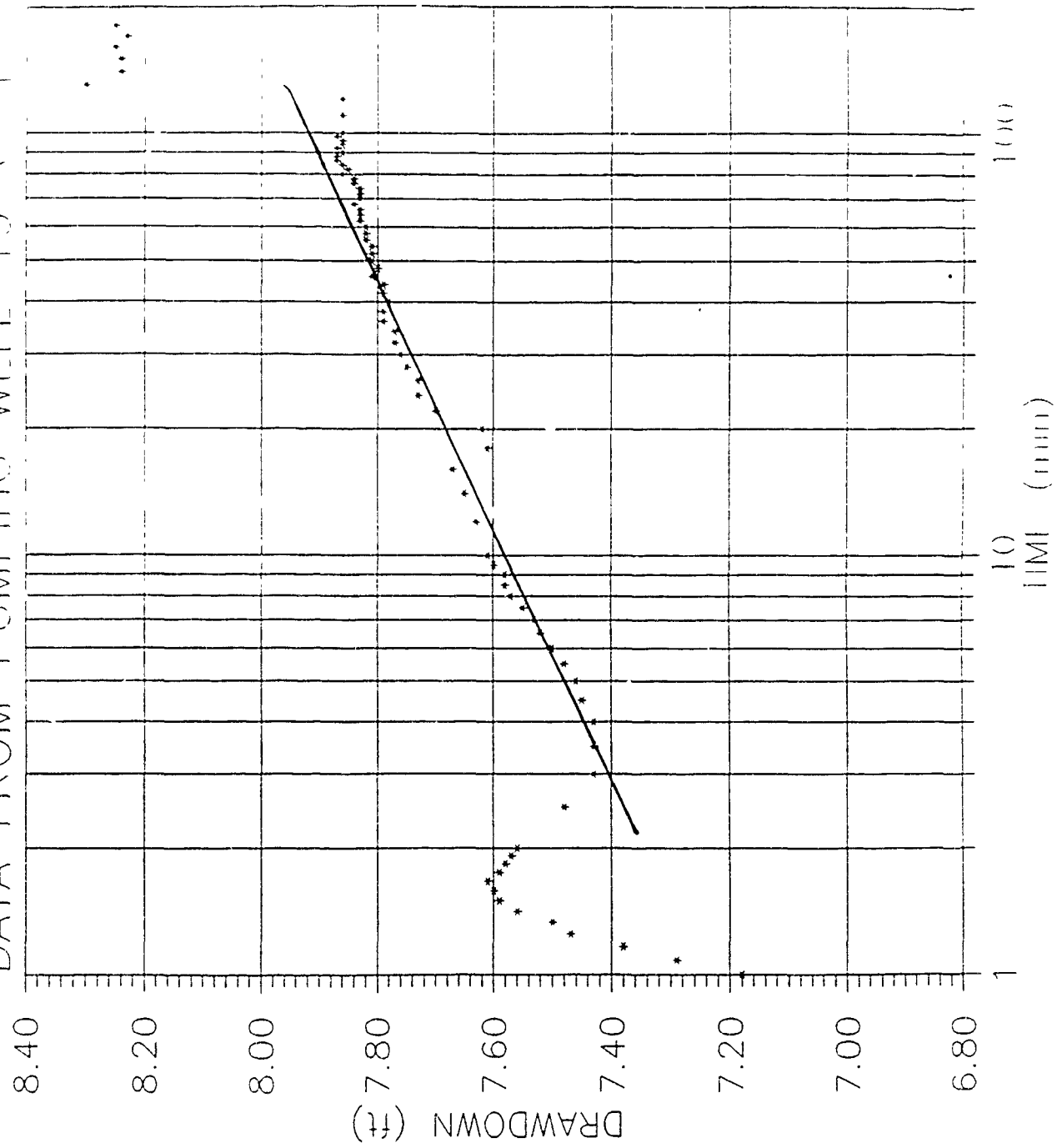
$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(22.8 \text{ gpm}) / (0.26 \text{ ft})} \\
 &= \frac{23,000 \text{ gpd/ft}}{3,100 \text{ ft}^2/\text{d}} \\
 K &= \frac{T/b}{(3,100 \text{ ft}^2/\text{d}) / (60 \text{ ft})} \\
 &= \frac{52 \text{ ft/d}}{52 \text{ ft/d}} \\
 S &= \frac{(2.25)(T)(t_0)/(r^2)}{(2.25)(2.2 \text{ ft}^2/\text{min})(100 \text{ min}) / (8.3 \times 10^{-3} \text{ ft})}
 \end{aligned}$$

PUMP RECOVERY TEST: 3/19-3/22/89
OBS WELL 19-C-3 (19-C-4 PUMPING)

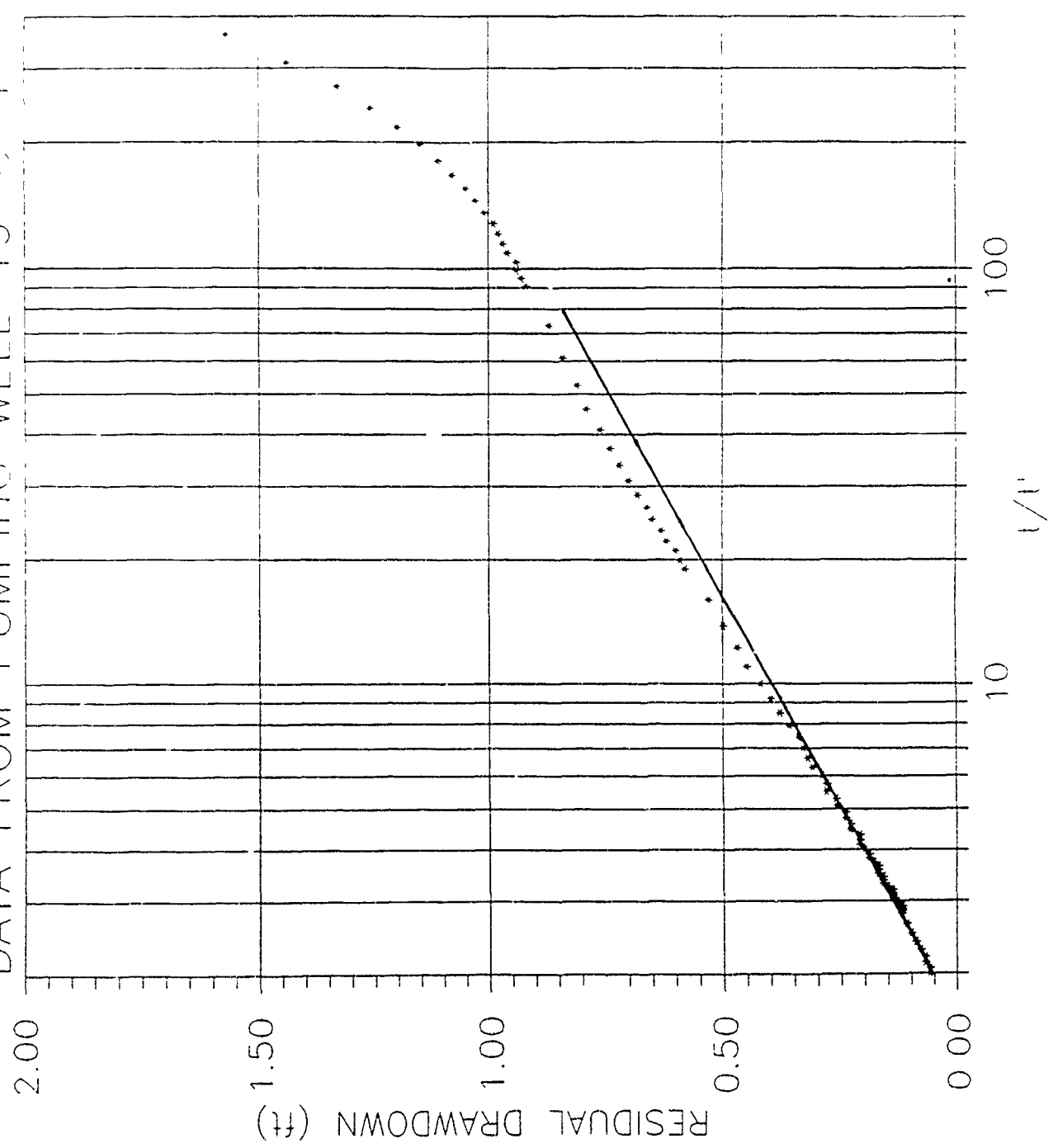


$$\begin{aligned}
 T &= (264)(0.1)/(\Delta S) \\
 &= (264)(22.8 \text{ gpm})/(0.32 \text{ ft}) \\
 &= 19,000 \text{ gpd/ft} \\
 &= 2,500 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (2,500 \text{ ft}^2/\text{d})/(60 \text{ ft}) \\
 &= 42 \text{ ft/d}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/22/89 DATA FROM PUMPING WELL 19--C-1

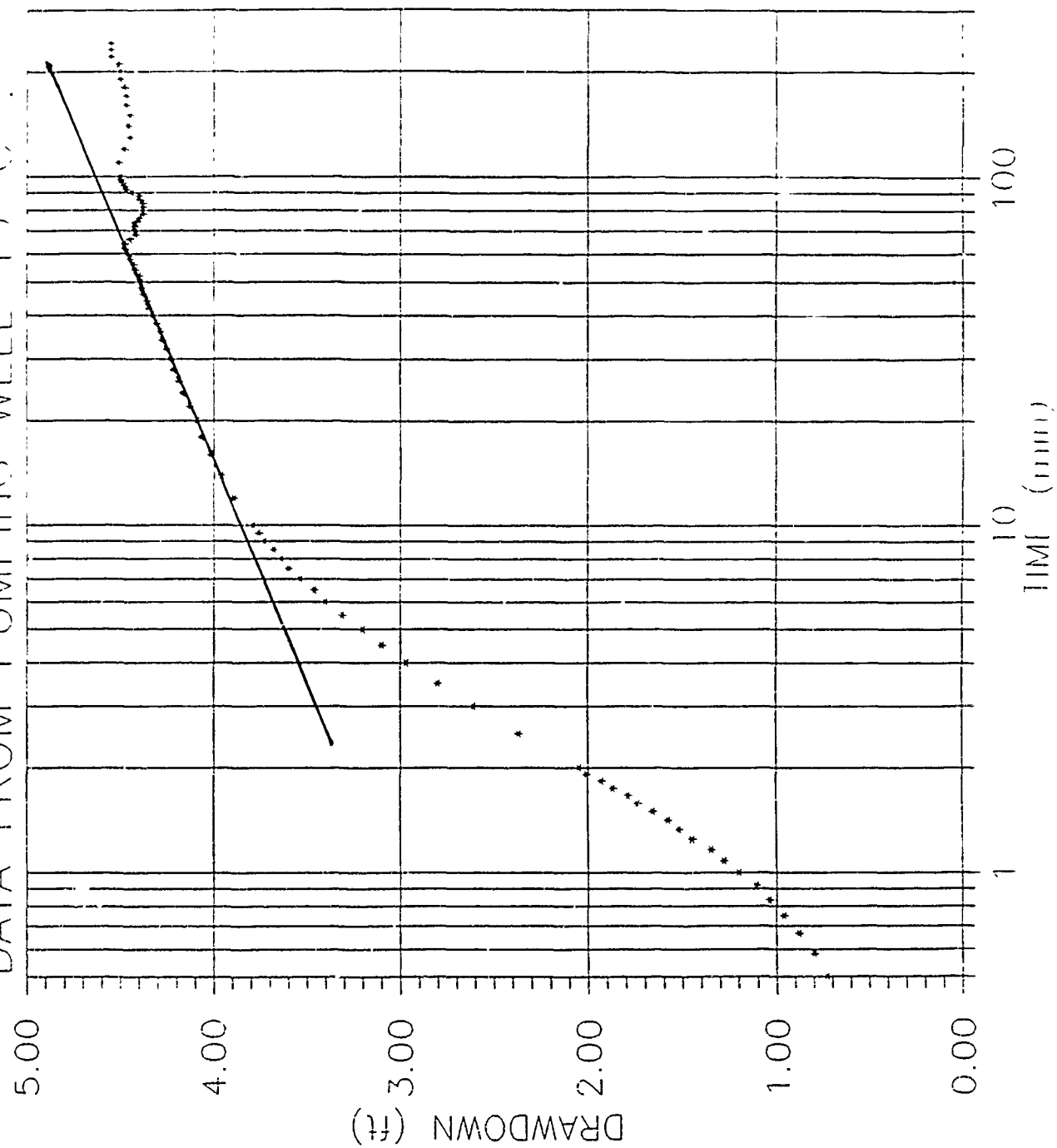


PUMP RECOVERY TEST: 2/22/89 DATA FROM PUMPING WELL 19--C--1



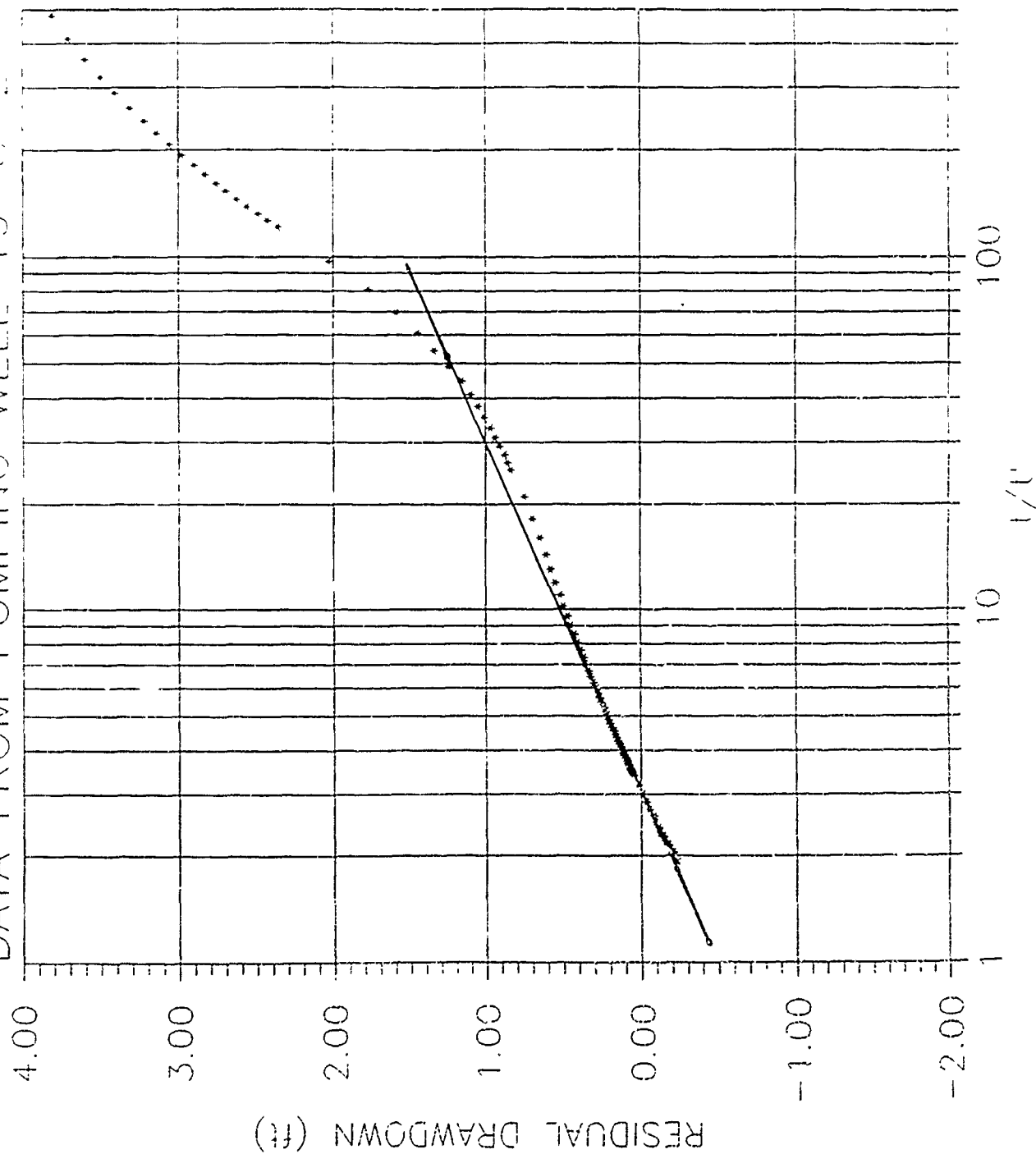
$$\begin{aligned}
 I &= \frac{(264)(0)/(\Delta S)}{(264)(100 \text{ gpm})/(0.48 \text{ ft})} \\
 &= \frac{5,500 \text{ gpm/ft}}{755 \text{ ft/d}} \\
 K &= \frac{I/b}{(735 \text{ ft}^2/\text{d})/(20 \text{ ft})} \\
 &= \frac{57 \text{ ft/d}}{37 \text{ ft/d}}
 \end{aligned}$$

PUMP DRAWDOWN TEST: 2/27/89 DATA FROM PUMPING WELL 19-C-2



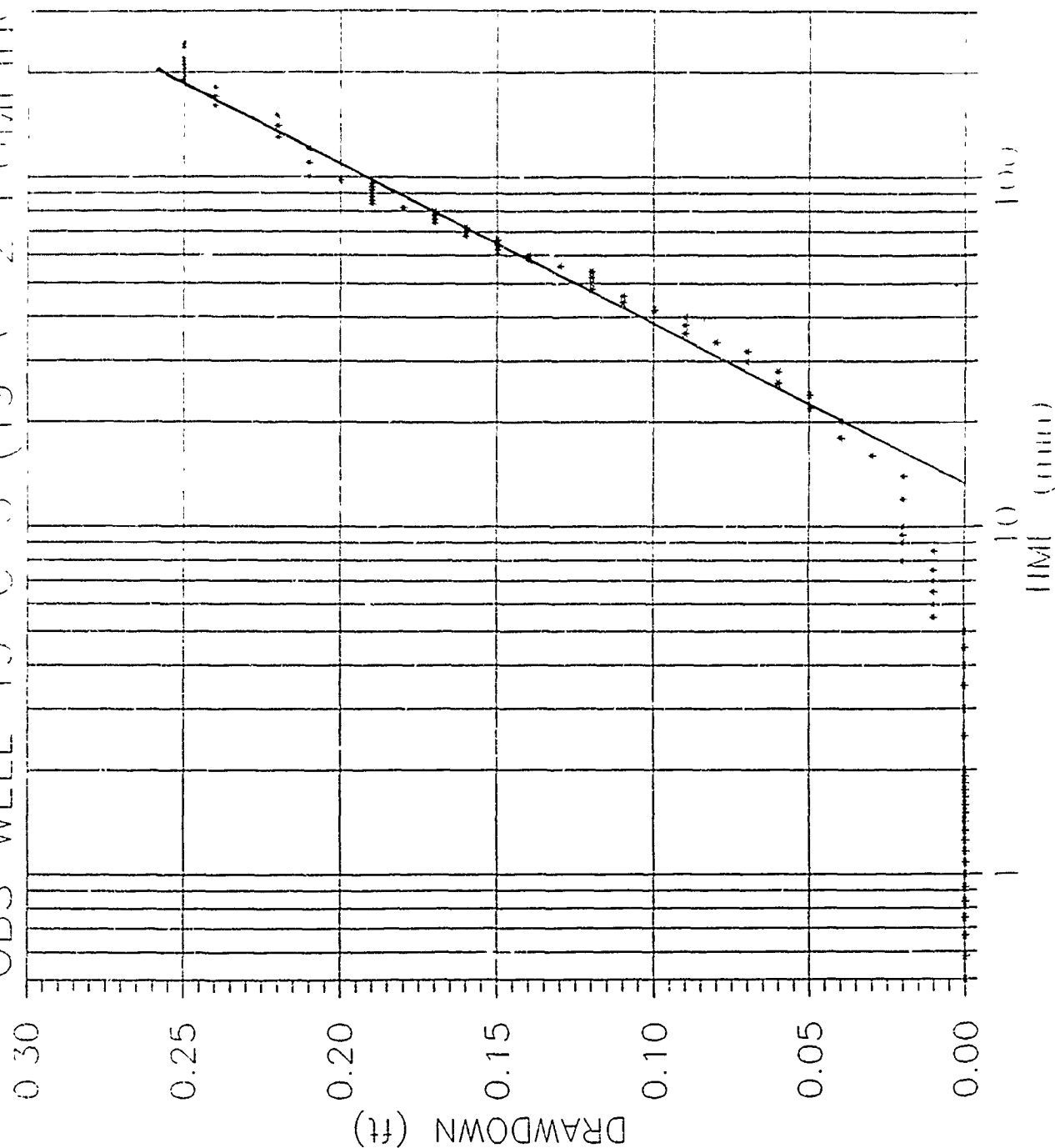
$$\begin{aligned}
 1 &= (264)(9)/(\Delta S) \\
 &= (264)(2.3 \text{ gpm})/(0.8 \text{ ft}) \\
 &= 760 \text{ gpm/ft} \\
 &= 100 \text{ ft/d} \\
 K &= 1/b \\
 &= (100 \text{ ft/d})/(19 \text{ ft}) \\
 &= 5.3 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 2/27/89 DATA FROM PUMPING WELL 19-C-2



$$\begin{aligned}
 T &= (264)(Q)/(\Delta s) \\
 &= (264)(2.3 \text{ gpm})/(1.6 \text{ ft}) \\
 &= 610 \text{ gpm/ft} \\
 &= 81 \text{ ft}^2/\text{d} \\
 K &= 1/b \\
 &= (81 \text{ ft}^2/\text{d})/(19 \text{ ft}) \\
 &= 4.5 \text{ ft/d}
 \end{aligned}$$

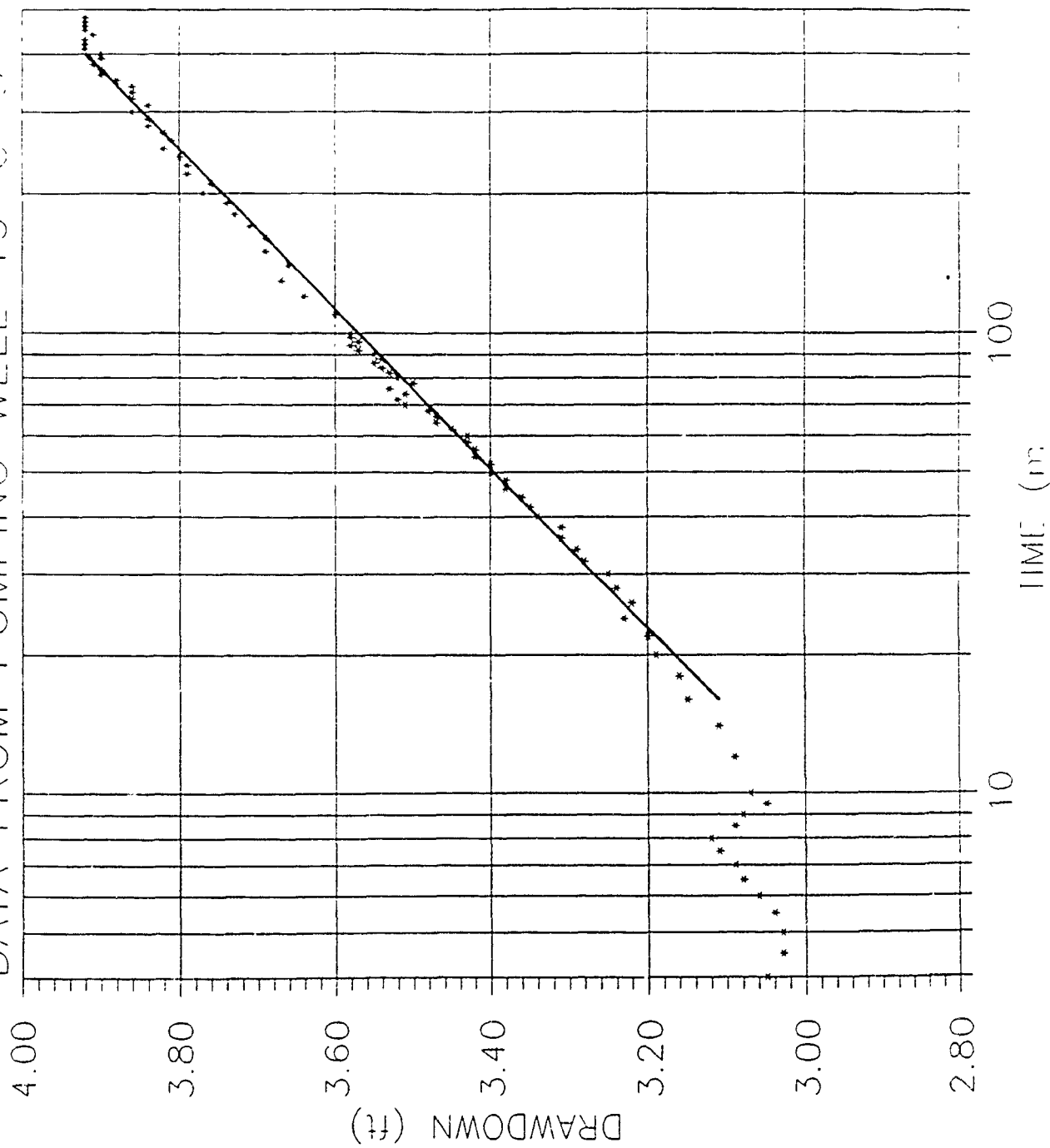
PUMP DRAWDOWN TEST: 2/27/89 OBS WELL 19-C 3 (19-C-2 PUMPING)



$$\begin{aligned}
 T &= (264)(Q)/(\Delta S) \\
 &= (264)(2.5 \text{ gpm})/(0.22 \text{ ft}) \\
 &= 2,800 \text{ gpm/ft} \\
 &= 370 \text{ ft/d} \\
 P &= 1/6 \\
 &= (370 \text{ ft}^2/\text{d})/(1.0 \text{ ft}) \\
 &= 18 \text{ ft/d} \\
 S &= (2.25)(1)(t_w)/(t^2) \\
 &= (2.25)(0.26 \text{ ft}^2/\text{min})(14 \text{ min})/ \\
 &= 48.10^4
 \end{aligned}$$

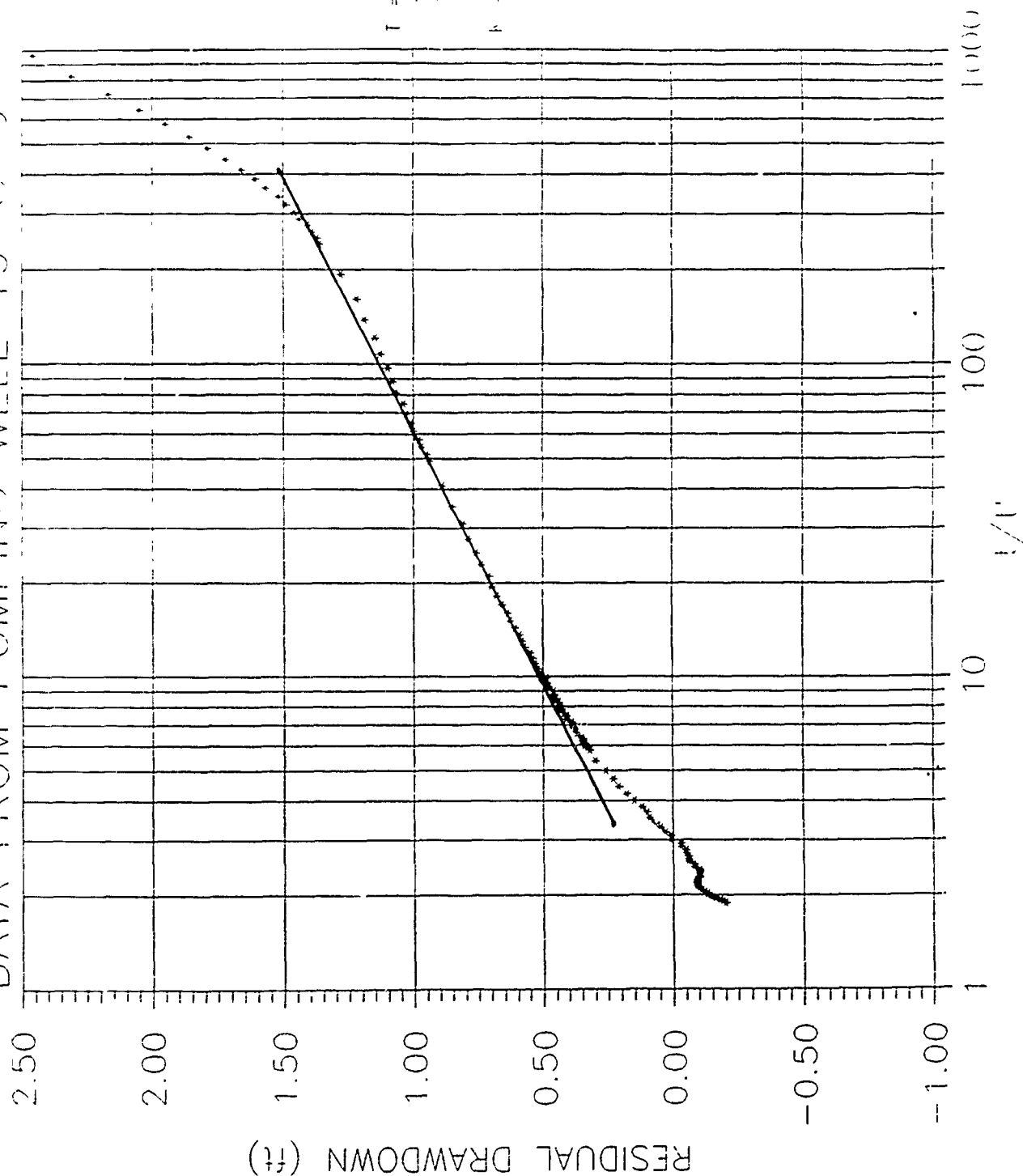
(DATA FROM RECOVERY TEST
IN OBS WELL)

PUMP DRAWDOWN TEST 3/1/89 DATA FROM PUMPING WELL 19-C-3



$$\begin{aligned}
 I &= (264)(Q)/(\Delta S) \\
 &= (264)(33 \text{ gpm})/(0.58 \text{ ft}) \\
 &= 1,500 \text{ gpd/ft} \\
 &= 200 \text{ ft}^2/\text{d} \\
 K &= 1/b \\
 &= (200 \text{ ft}^2/\text{d})/(20 \text{ ft}) \\
 &= 10 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY IFST: 3/1/89 DATA FROM PUMPING WELL 19--C--5



E-85

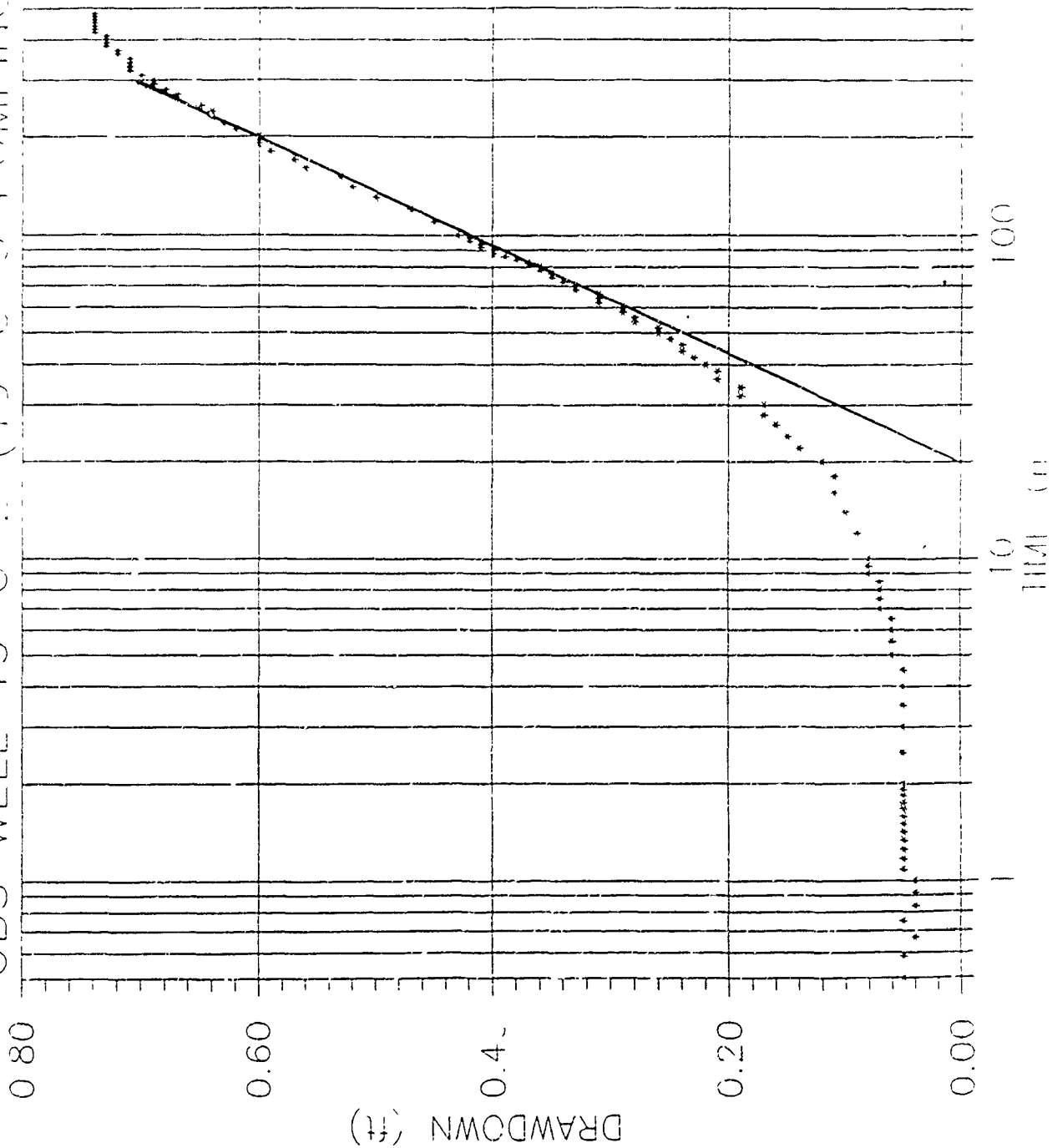
$$T = \frac{(26.4)(Q)/(\Delta S)}{(26.4)(5.3 \text{ gpm})/(0.60 \text{ ft})}$$

$$= \frac{1,450 \text{ gpm/ft}}{150 \text{ ft}^2/\text{d}}$$

$$K = \frac{1/b}{(200 \text{ ft}/d)/(2.0 \text{ ft})}$$

$$= \frac{9}{\text{ft/d}}$$

PUMP DRAWDOWN TEST: 3/1/89 OBS WELL 19-C-2 (19-C-3 PUMPING)



$$T = \frac{(264)(Q)}{(AS)} = \frac{(264)(3.5 \text{ gpm})}{(0.60 \text{ ft})} = 1,450 \text{ gpm/ft} = 190 \text{ ft}^2/d$$

$$K = \frac{1}{h} = \frac{(190 \text{ ft}^2/d)}{(13.5 \text{ ft})} = 14.0 \text{ ft/d}$$

$$S = \frac{(2.25)(T)(t_0)}{(t_0^2)} = \frac{(2.25)(190 \text{ ft}^2/d)(20 \text{ min})}{(129.85 \text{ ft})^2} = 3.5 \times 10^{-4}$$

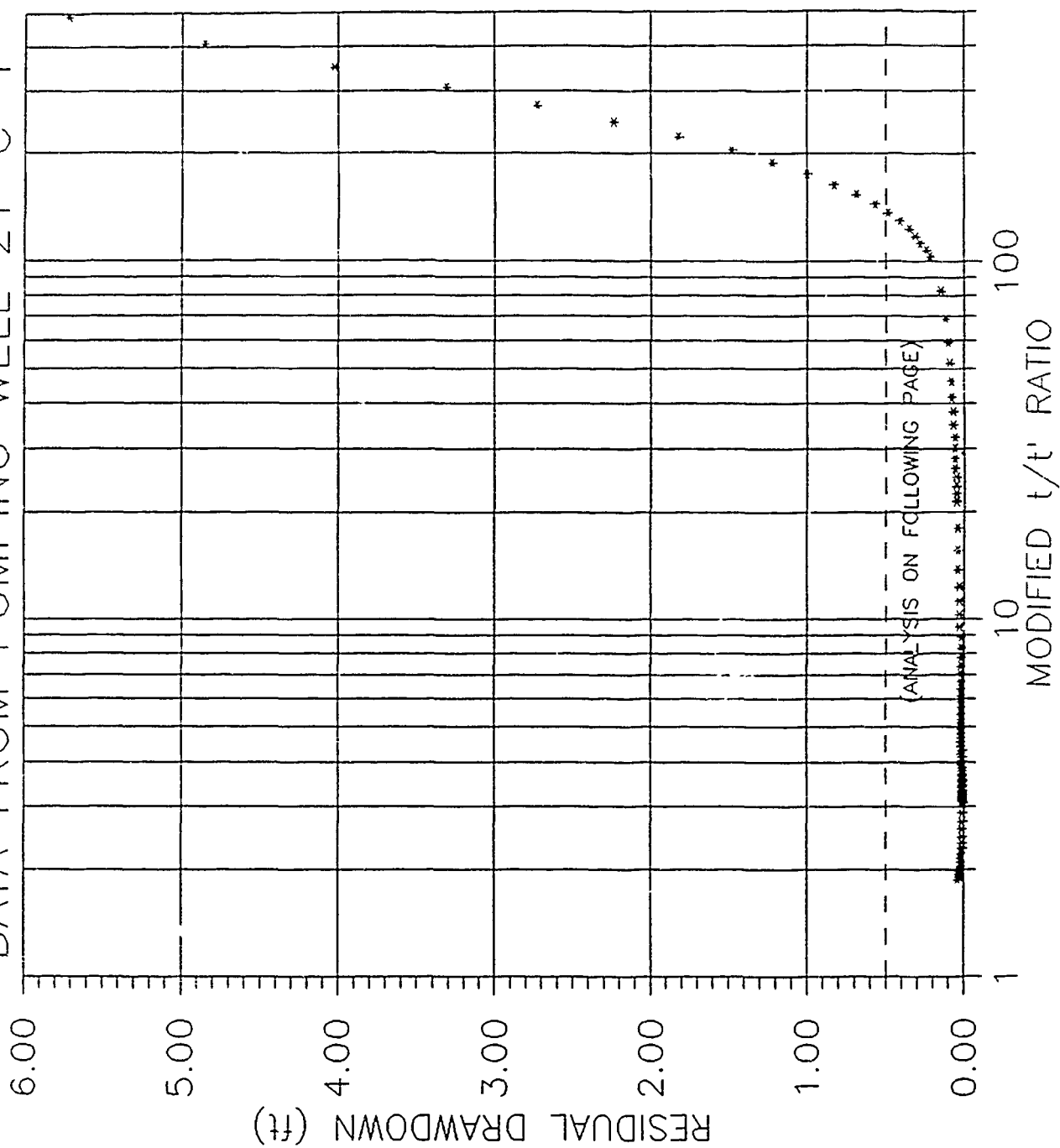
(DATA FROM RECOVERY TEST
NOT CONCLUSIVE)

SITE 21

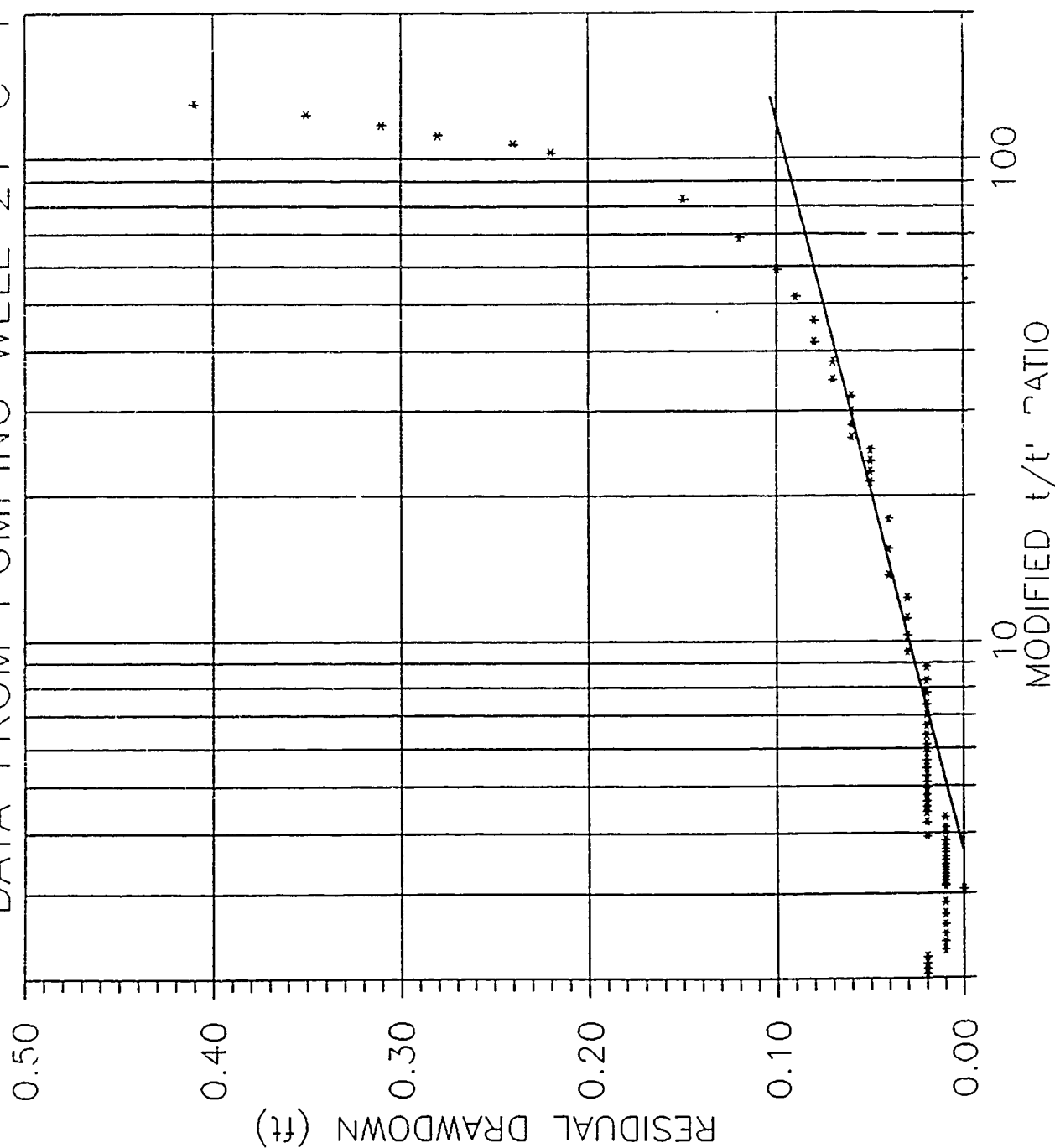
JP-7 ABOVEGROUND FUEL STORAGE TANKS

Pump Test Plots

RECOVERY OF STEP DRAWDOWN TEST: 3/9/89 DATA FROM PUMPING WELL 21-C-1



RECOVERY OF STEP DRAWDOWN TEST: 3/9/89 DATA FROM PUMPING WELL 21-C-1



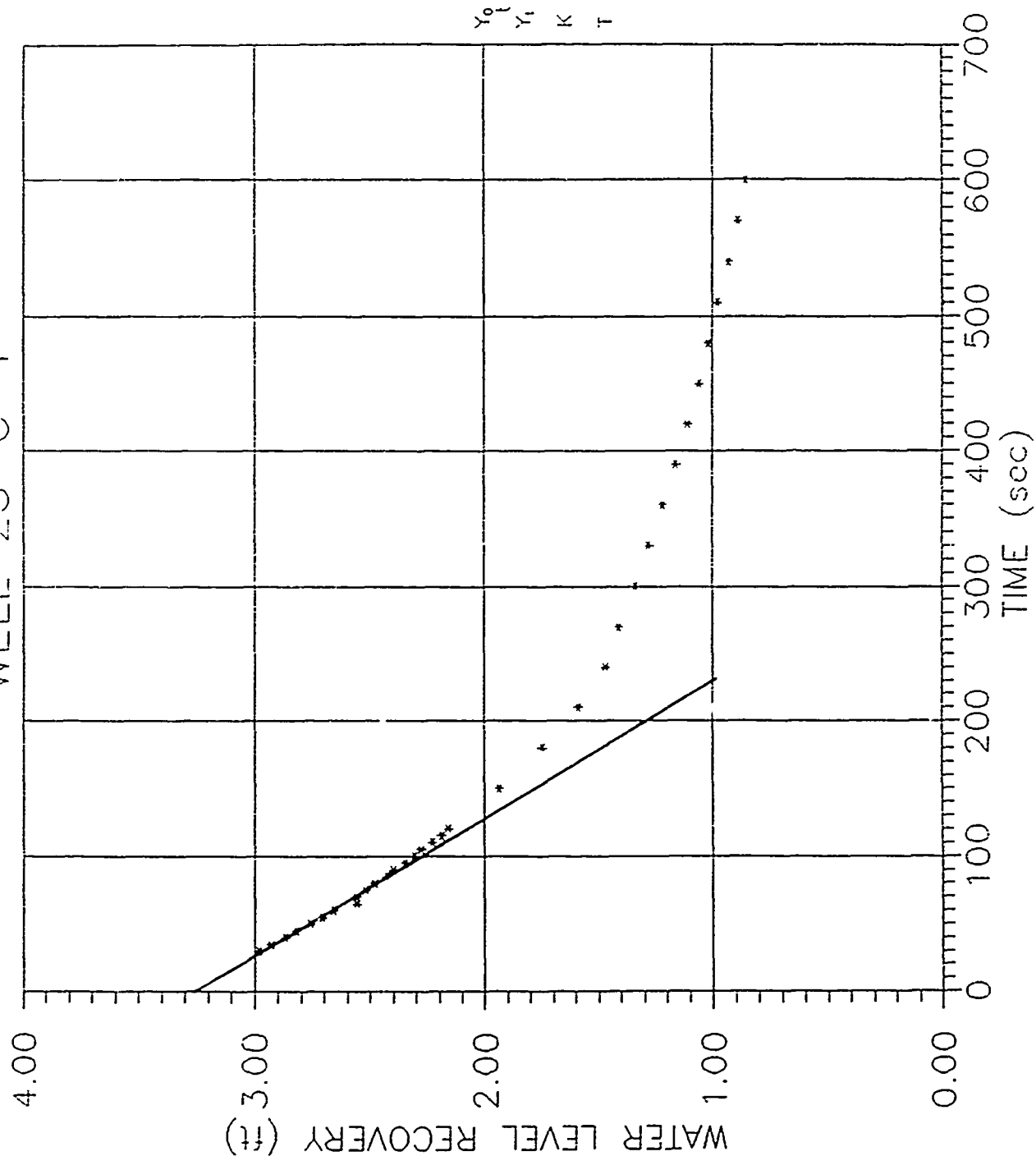
$$\begin{aligned}
 T &= (264)(0)/(\Delta S) \\
 &= (264)(13.3 \text{ gpm})/(0.63 \text{ ft}) \\
 &= 5,600 \text{ gpd/ft} \\
 &= 750 \text{ ft}^2/\text{d} \\
 K &= T/b \\
 &= (750 \text{ ft}^2/\text{d})/(20 \text{ ft}) \\
 &= 37 \text{ ft/d}
 \end{aligned}$$

SITE 23

NINTH TRANSPORTATION REFUELING/MAINTENANCE SHOP

Slug Test Plots

SLUG TEST: 3/29/89 WELL 23-C-1

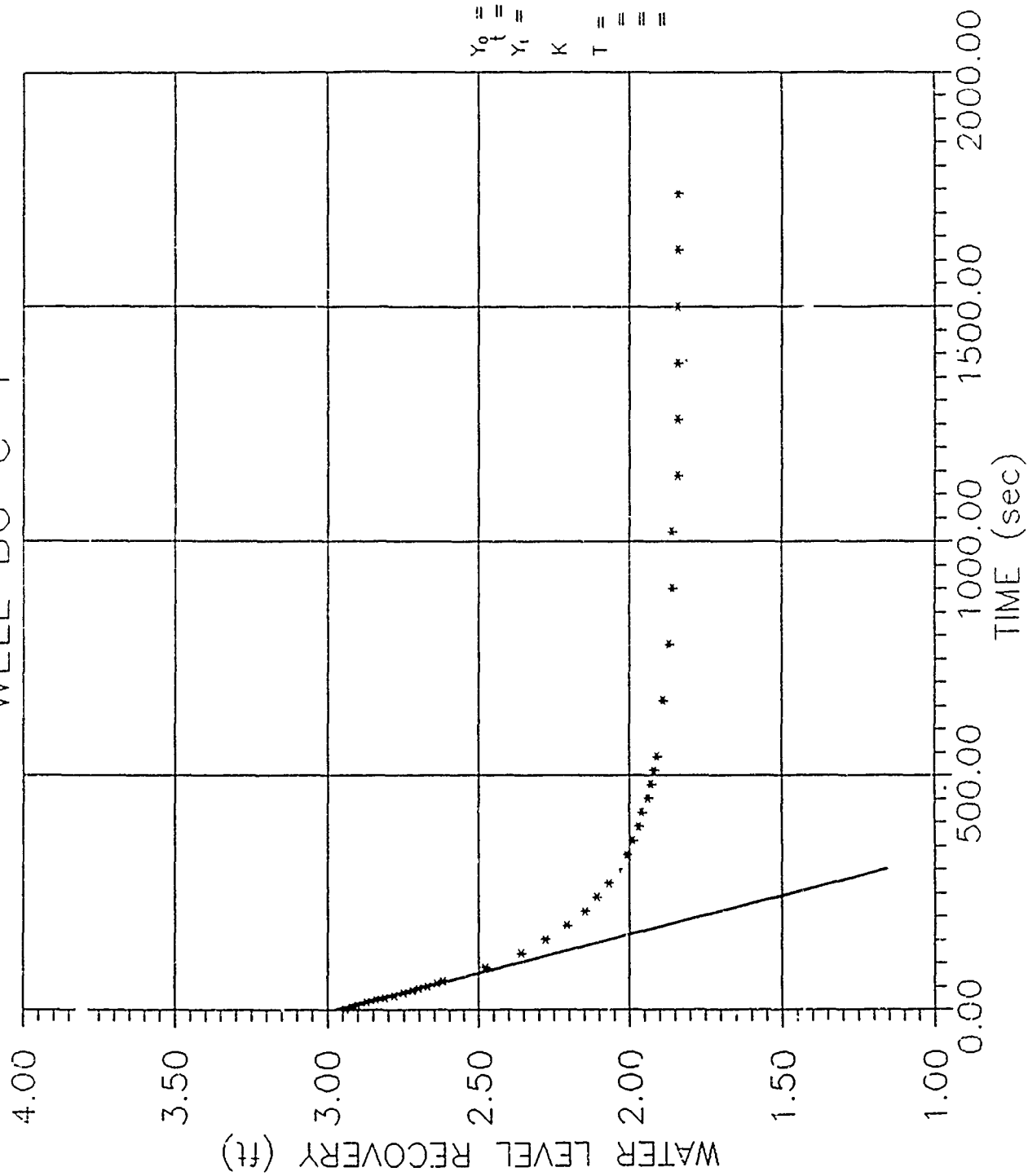


$Y_0 = 3.28$ ft
 $t = 100$ sec
 $Y_1 = 2.27$ ft
 $K = 1.9$ ft/day
 $T = (K)(b) / (1.9 \text{ ft/day})(17.3 \text{ ft})$
 $= 33 \text{ ft}^2/\text{day}$
 $= 250 \text{ gpd/ft}$

BACKGROUND WELLS

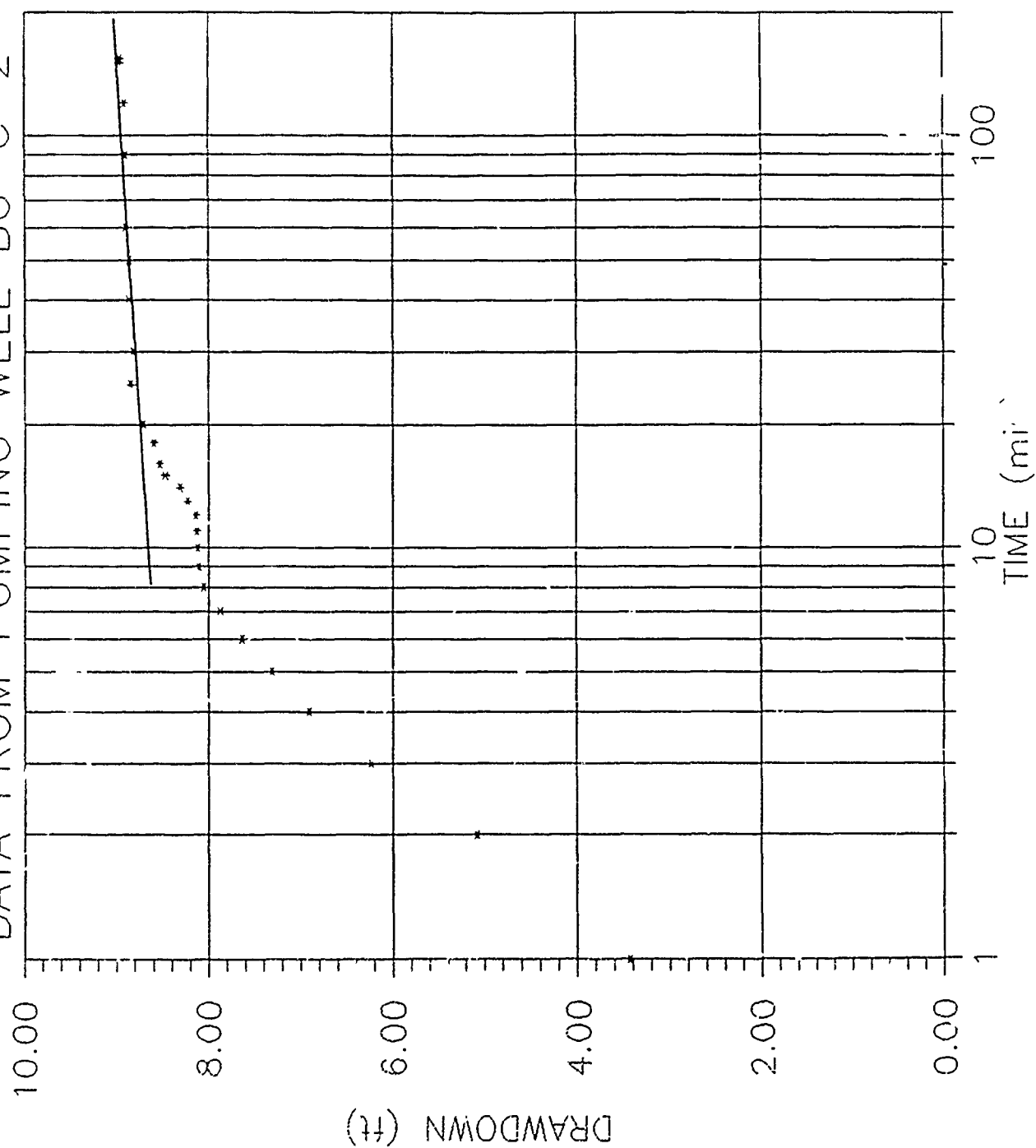
Slug Test and Pump Test Plots

SLUG TEST: 2/1/89 WELL BG-C-1



$Y_0 = 2.96$ ft
 $t = 100$ sec
 $Y_1 = 2.41$ ft
 $K = 5.1$ ft/day
 $T = (K \cdot Y_0) / (Y_1 - Y_0) = (5.1 \text{ ft/day}) / (2.96 - 2.41) \text{ ft} = 73 \text{ ft}^2/\text{day} = 550 \text{ gpd/ft}$

PUMP DRAWDOWN TEST: 1/30/89 DATA FROM PUMPING WELL BG-C-2

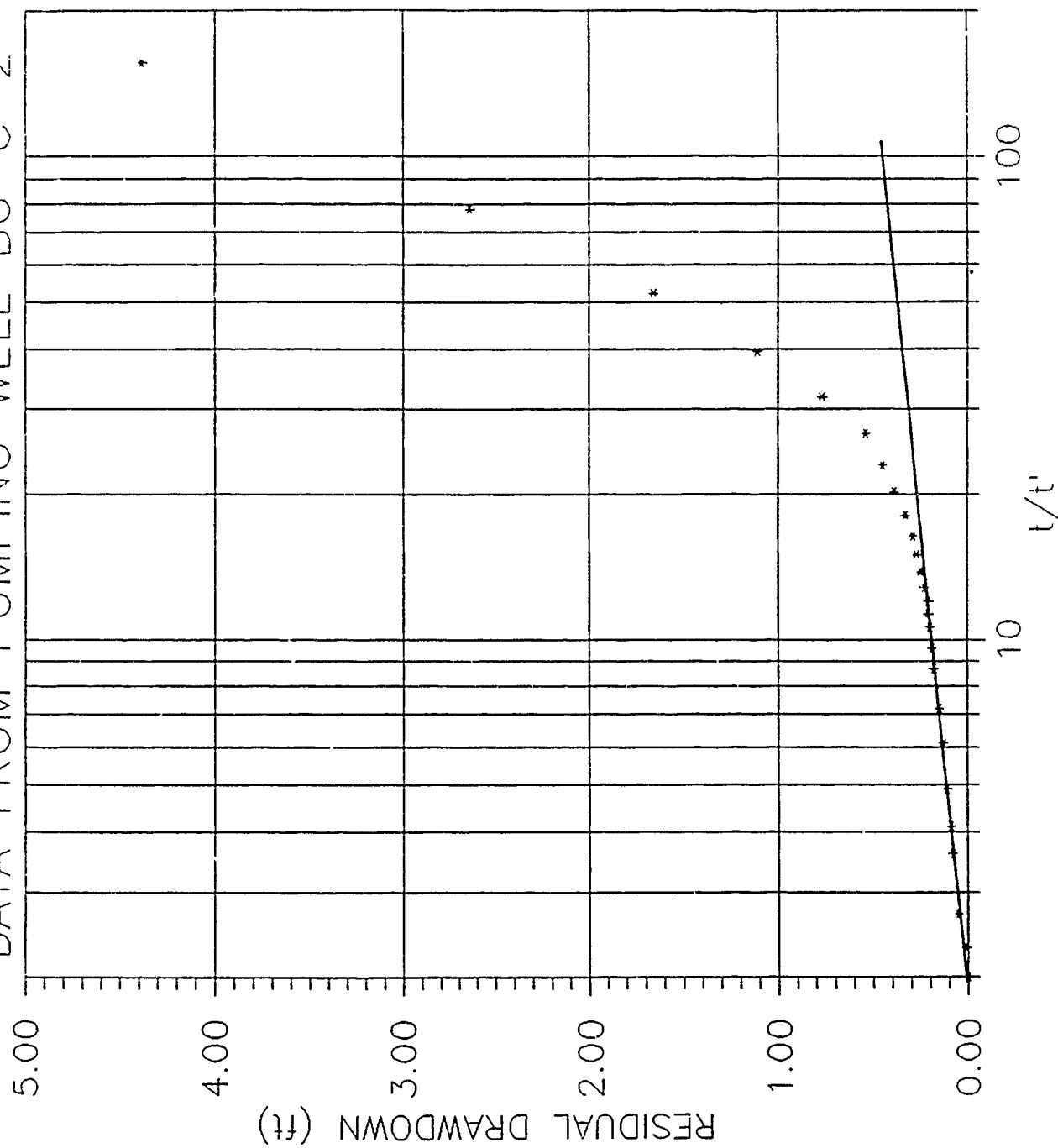


DRAWDOWN (ft)

TIME (min)

$$\begin{aligned}
 T &= \frac{(264)(Q)}{(264)(6.7 \text{ gpm}) / (0.22 \text{ ft})} \\
 &= \frac{8,000 \text{ gpd}}{1,100 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{8,000 \text{ ft}^2/\text{d}}{69 \text{ ft/d}} \\
 &= 115.9 \text{ ft/d}
 \end{aligned}$$

PUMP RECOVERY TEST: 1/30/89 DATA FROM PUMPING WELL BG-C-2



$$\begin{aligned}
 T &= \frac{(264)(Q)(\Delta S)}{(264)(6.7 \text{ gpm})/(0.23 \text{ ft})} \\
 &= \frac{7,700 \text{ gpd/ft}}{1,000 \text{ ft}^2/\text{d}} \\
 K &= \frac{T}{b} \\
 &= \frac{(1,000 \text{ ft}^2/\text{d})/(15.6 \text{ ft})}{86 \text{ ft/d}}
 \end{aligned}$$

APPENDIX F

QUALITY CONTROL/QUALITY ASSURANCE DATA (QA/QC)

METHOD BLANKS

METHOD BLANKS

Wet Chemistry

BLANK REPORT

[illegible]

BLANK REPORT

[illegible]

unit: mg/Liter

BLANK REPORT

[illegible]

unit: mg/Liter

F-3

BLANK REPORT

[illegible]

unit: mg/Liter

BLANK REPORT

[illegible]

unit: mg/Liter
Form 014

F-5

BLANK REPORT

[illegible]

unit: mg/Liter

BLANK REPORT

[illegible]

unit: mg/Liter

1000
 1000
 1000

BLANK REPORT

[illegible]

unit: mg/liter

Form 014

F-8

BLANK REPORT

[illegible]

unit: mg/liter

F-9

Form 014

BLANK REPORT

[illegible]

unit: mg/Liter

Form 014

F-10

BLANK REPORT

[illegible]

unit: mg/Liter

F-11

Form 01A

ELANK REPORT

[illegible]

unit: mg/liter

BLANK REPORT

[illegible]

unit: mg/liter

F-13

Form 014

DP#: BAFB3

QA/QC SUMMARY

TEST	DATE ANALYZED	UNITS	DL	REFERENCE NUMBER	METHOD	DUPLICATES			SPIKE			LCS			LCS SOURCE
						SR	D	RPD	TV	SSR	% R	TV	RESULT	% R	
TDS	08-31-89	mg/l	3	24158-3		263	258	1.9				508	492	96.8	LAB
TDS	09-01-89	mg/l	3	24185-8		251	240	4.5				508	522	103	LAB
TDS	09-01-89	mg/l	3	24191-3		336	335	0.3				508	506	99.6	LAB
TDS	09-06-89	mg/l	3	24202-6		203	1999	2.0				508	499	98.2	LAB
TDS	09-13-89	mg/l	3	24242-7		254	248	2.4				508	560	110	LAB
TDS	09-14-89	mg/l	3	24246-3		228	225	1.3							
TDS	09-14-89	mg/l	3	24265-3		244	250	2.4				508	484	95.3	LAB
TDS	09-18-89	mg/l	3	24272-3		247	244	1.2				575	569	99.0	LAB
TDS	09-19-89	mg/l	3	24304-3		284	283	0.4				575	567	98.6	LAB
TDS	09-20-89	mg/l	3	24337-3		347	363	4.5				575	5882	102	LAB
TDS	09-25-89	mg/l	3	24387-4		385	368	4.5				575	572	99.5	LAB
TDS	09-27-89	mg/l	3	24406-4		359	364	1.4							
TDS	10-02-89	mg/l	3	24451-1		460	457	0.7				575	563	97.9	LAB
Chloride	09-15-89	mg/l	1	24185-8	<1.0	16.8	17.5	4.1	20.0	38.1	106	1000	1008	101	LAB
Chloride	09-20-89	mg/l	1	24202-6	<1.0	10.8	11.2	3.6	20.0	30.5	98.5	1000	976	97.6	LAB
Chloride	09-22-89	mg/l	1	24246-3	<1.0	24.8	25.2	1.6	20.0	44.8	100	1000	984	98.2	LAB
Chloride	09-22-89	mg/l	1	24265-3	<1.0	43.7	43.7	0.0	20.0	64.1	102	1000	983	98.3	LAB
Chloride	10-16-89	mg/l	1	24451-1	<1.0	45.7	45.6	0.2	40.0	86.4	102	1000	999	99.9	LAB
Fluoride	09-15-89	mg/l	0.05	24202-6	<0.05	0.27	0.29	7.1	0.20	0.51	120	0.42	0.44	105	EPA-CI
Fluoride	09-15-89	mg/l	0.05	24185-8	<0.05	0.24	0.27	11.8	0.20	0.45	105	0.40	0.43	108	LAB
Fluoride	09-20-89	mg/l	0.05	24242-6	<0.05	0.18	0.19	5.4	0.20	0.34	80.0	0.42	0.36	85.7	EPA-CI
Fluoride	09-20-89	mg/l	0.05	24337-1	<0.05	0.14	0.13	7.4	0.20	0.29	75.0	0.42	0.38	90.5	EPA-CI
Fluoride	10-13-89	mg/l	0.05	24451-1	<0.05	0.23	0.23	0.0	0.10	0.33	100	0.40	0.41	102	LAB

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

QA/QC SUMMARY

DP# : BAFB3

TEST	DATE ANALYZED	UNITS	DL	REFERENCE NUMBER	METHOD	DUPLICATES				SPIKE				LCS				LCS SOURCE
						SR	D	RPD	TV	SSR	% R	TV	RESULT	% R				
Sulfate	09-16-89	mg/l	1	24185-3	<1	<1	<1	NC	5.00	5.7	114	20.0	21.9	110		LAB		
Sulfate	09-16-89	mg/l	1	24202-4	<1	<1	<1	NC	5.00	5.2	104	20.0	22.2	111		LAB		
Sulfate	09-21-89	mg/l	1	24230-16 *	<1	11.7	11.7	0.0	10.0	22.8	111	20.0	21.5	108		LAB		
Sulfate	09-21-89	mg/l	1	24242-7	<1	6.0	6.0	0.0	10.0	15.4	94.0	20.0	21.2	106		LAB		
Sulfate	10-11-89	mg/l	1	24451-1	<1	7.9	7.7	2.6	5.00	12.3	87.6	20.0	19.8	99.0		LAB		
Nitrate-Nitrite @ NO3	09-18-89	mg/l	0.13	24202-6	<0.13	10.14	9.79	3.6	11.1	23.0	116	8.86	10.1	114		EPA-CI		
Nitrate-Nitrite @ NO3	09-27-89	mg/l	0.13	24242-7	<0.13	11.4	11.7	2.6	4.4	16.6	117	8.86	8.82	99.5		EPA-CI		
Nitrate-Nitrite @ NO3	10-09-89	mg/l	0.13	24451-1	<0.13	0.22	0.22	0.0	0.89	1.20	110	3.54	3.90	110		LAB		
COO	09-08-89	mg/l	7.0	24158-3	<7	<7	<7	NC	100	107	107	75.0	76.5	102		LAB		
COO	09-11-89	mg/l	7.0	24087-2 *	<7	19.0	20.4	7.0	100	121	102	75.0	75.6	101		LAB		
COO	09-28-89	mg/l	7.0	24265-1	<7	<7	<7	NC	100	108	108	75.0	75.9	101		LAB		
Total Cyanide	09-26-89	mg/l	0.01	24304-1	<0.01	<0.01	<0.01	NC	0.100	0.111	111	0.094	0.108	115		EPA-LV		

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations >5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SP is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations <4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

FORM 004

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable



QA/QC SUMMARY

DP#: BAF248

TEST	DATE ANALYZED	UNITS	DI	REFERENCE NUMBER	METHOD	DUPLICATES			SPIKE			LCS			LCS SOURCE
						SR	D	RPD	TV	SSR	% R	TV	RESULT	% R	
Chem. Oxygen Demand	11-17-89	mg/L	7.0	24887-4	<7.0	<7.0	<7.0	NC				75	80.7	108%	LAB
Chem. Oxygen Demand	11-17-89	mg/L	7.0	24887-4	<7.0	<14.0			100	94.2	94.2				
Chem. Oxygen Demand	11-27-89	mg/L	7.0	24898-2	<7.0	<7.0	<7.0	NC				75	85.1	113	LAB
Chem. Oxygen Demand	11-27-89	mg/L	7.0	24898-2	<7.0	<14.0			100	95.6	95.6				
Total Dissolved Solids	11-15-89	mg/L	3.0	24868-2	----	309	372	4.5				575	549	95.5	LAB
Total Dissolved Solids	11-20-89	mg/L	3.0	24887-3	----	241	233	3.3				575	497	86.4	LAB
Total Dissolved Solids	11-20-89	mg/L	3.0	24898-3	----	316	307	2.9				575	560	97.4	LAB
Chloride	11-29-89	mg/L	1.0	24898-3	<1.0	34.2	34.8	1.7	100	14.0	105	1000	1076	108	LAB
Chloride	11-29-89	mg/L	1.0		<1.0							1000	1075	108	LAB
Fluoride	12-01-89	mg/L	0.10	24868-2	<0.10	0.15	0.15	0.0	0.10	0.25	100	0.40	0.42	105	LAB
Sulfate	11-27-89	mg/L	1.0	24898-1	<1.0	14.8	14.8	0.0	5.0	19.1	86.0	20.0	18.0	90.0	LAB
Nitrate/Nitrite as NO3	11-28-89	mg/L	0.13	24898-3	<0.13	9.13	8.77	4.0	11.1	21.3	110	0.80 *	0.84	105	LAB
Alkalinity	11-15-89	mg/L	1	24868-2	<1	115	114	0.7				0.05 **	0.51	102	LAB

QA Criteria

CL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

Comments: * LCS for NITRATE/NITRITE listed here is as N, not NO3.

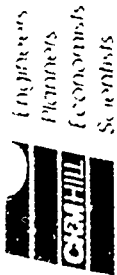
** the units for LCS is normality for the ALKALINITY test.

11/28/1989

Reichmeyer Environmental Laboratory

5090 Colquhoun Road Richmond, VA 23183

11/28/1989



QA/QC SUMMARY

DP#: 8AF249

TEST	DATE ANALYZED	UNITS	DI	REFERENCE		METHOD	DUPLICATES			SPIKE			LCS			LCS SOURCE
				NUMBER			SR	D	RPD	TV	SSR	% R	TV	RESULT	% R	
Chemical Oxygen Demand	11-27-89	mg/L	7.0	24898-2 *		<7.0	<7.0	<7.0	NC				75	85.1	113	LAB
Chemical Oxygen Demand	11-27-89	mg/L	7.0	24898-2 *		<7.0	<14.0			100	95.6	95.6				
Chemical Oxygen Demand	12-04-89	mg/L	7.0	24954-1		<7.0	<7.0	<7.0	NC				75	77.0	103	LAB
Chemical Oxygen Demand	12-04-89	mg/L	7.0	24954-1		<7.0	<14.0			100	93.7	93.7				
Total Dissolved Solids	11-21-89	mg/L	3	24934		----	263	252	4.3				575	577	100	LAB
Total Dissolved Solids	11-22-89	mg/L	3	24939-3		----	278	266	4.4				575	540	93.9	LAB
Total Dissolved Solids	11-27-89	mg/L	3	24957-4		----	252	251	0.4				575	585	102	LAB
Chloride	12-08-89	mg/L	1.0	24939-1		<1.0	9.6	8.8	8.7	20.0	29.5	99.5	1000	996	99.6	LAB
Chloride	12-08-89	mg/L	1.0	24939-3		<1.0	37.4	38.5	2.9	20.0	56.3	94.5	1000	991	99.1	LAB
Chloride	12-08-89	mg/L	1.0	24957-4		<1.0	12.2	11.5	5.9	20.0	32.3	100	1000	989	98.9	LAB
Fluoride	12-08-89	mg/L	0.10	24939-3		<0.10	0.16	0.15	6.5	0.20	0.36	100	0.40	0.42	105	LAB
Fluoride	12-08-89	mg/L	0.10	24934		<0.10	0.55	0.55	0.0	2.0	2.51	98.0	6.0	6.16	103	LAB
Sulfate	12-08-89	mg/L	1.0	24957-4		<1.0	11.9	11.9	0.0	5.0	16.0	82.0	2.0	18.0	90.8	LAB
Nitrate/Nitrite	12-07-89	mg/L	0.13	24939-3		<0.13	3.32	3.19	4.1	0.89	4.39	120	0.80 **	0.86	108	LAB
Nitrate/Nitrite	12-07-89	mg/L	0.13	24957-4		<0.13	4.08	4.47	9.3	8.86	13.5	106	0.80 **	0.86	108	LAB
Total Alkalinity as CaCO3	11-22-89	mg/L	1	24954-1		<1	132	133	0.8				0.05***	0.05	100	LAB

QA Criteria

- 1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
- 2. Duplicates RPD = + or - 20% for concentrations >5 times DL.
- 3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
- 4. Spike % Recovery = 75-125% for sample concentrations <4 times the spike concentrations.
- 5. QC Check = + or - 20% of True Value or within EPA range.
- * This Beale Sample is reported in data package 8AF248 and is used here for QC purposes only.
- ** The LCS for Nitrate/Nitrite is reported as 2M.
- *** The LCS for Alkalinity is reported in units of Normality.

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable



QA/QC SUMMARY

DP#: BAF250

TEST	DATE ANALYZED	UNITS	DL	REFERENCE		METHOD	DUPLICATES			SPIKE			LCS		LCS	
				NUMBER	DL		SR	D	RPD	TV	SSR	% R	TV	RESULT	% R	SOURCE
COO	12-04-89	mg/L	7.0	24954-1 *	7.0	<7.0	<7.0	<7.0	HC				75	77	103	LAB
COO	12-04-89	mg/L	7.0	24954-1 *	7.0	<7.0	<14.0			100	93.7	93.7				
COO	12-13-89	mg/L	7.0	25118-2	7.0	<7.0	77.9	83.3	6.7				75	78.9	105	LAB
COO	12-13-89	mg/L	7.0	25118-2	7.0	<7.0	88.4			100	180	91.6				
Total Dissolved Solids	12-04-89	mg/L	3	25010-2		----	259	254	1.9				575	558	97.0	LAB
Total Dissolved Solids	12-06-89	mg/L	3	25059-4		----	245	250	2.0				575	573	99.7	LAB
Total Dissolved Solids	12-11-89	mg/L	3	25088-3		----	12	12	0.0				575	464	80.7	LAB
Chloride	12-12-89	mg/L	1.0	25118-2	1.0	<1.0	24.8	27.9	11.8	100	126	101	1000	1020	102	LAB
Fluoride	12-12-89	mg/L	0.10	25118-2	0.10	<0.10	0.28	0.28	0.0	0.20	0.49	105	0.40	0.42	105	LAB
Sulfate	12-14-89	mg/L	1.0	25118-2	1.0	<1.0	370	315	1.6	100	428	108	20.0	19.1	95.5	LAB
Nitrate/Nitrite	12-15-89	mg/L	0.13	25020-5	0.13	<0.13	23.1	23.1	0.0	22.2	48.3	114	0.80 **	0.87	109	LAB
Nitrate/Nitrite	12-15-89	mg/L	0.13	25059-4	0.13	<0.13	18.1	18.2	0.5	22.2	43.5	115	0.80 **	0.89	111	LAB
Nitrate/Nitrite	12-15-89	mg/L	0.13	25118-2	0.13	<0.13	6.20	6.11	1.4	8.86	15.8	108	0.80 **	0.86	108	LAB
Total Cyanide	12-11-89	ug/L	10	25010-1	10	<10	<10	<10	HC	100	103	103	94	101	107	EPA
Total Cyanide	12-12-89	ug/L	10	25059-2	10	<10	<10	<10	HC	100	87.6	87.6	94	103	110	EPA
Total Cyanide	12-12-89	ug/L	10	25059-3	10	<10	<10	<10	HC	100	87.0	87.0	94	101	107	EPA

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

HC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

* This Beale sample is reported in Data Package #BAF249 and is listed here for QC purposes only.

** The LCS for Nitrate/Nitrite is reported as 0.

FORM 004

01/24/1991

Receiving Environmental Laboratory

5020 Campbell Road Redding, California 96003

2445227



Rocking Environmental Laboratory

ANALYSIS SUMMARY

DP#: BAF251

TEST	DATE	ANALYZED	UNITS	QC	REFERENCE NUMBER	METHOD	DUPLICATES				SPIKE				LCS	
							SR	D	RPD	TV	SSR	% R	% R	SOURCE		
Total Dissolved Solids	12-11-89		mg/L	3	25151-5		219	242	10.0						92.5	LAB
Chloride	12-19-89		mg/L	1.0	25151-5	<1.0	47.2	48.0	1.7	20	68.2	105			104	LAB
Fluoride	12-20-89		mg/L	0.10	25151-5	<0.10	0.40	0.40	0.0	0.10	0.49	90.0			95	LAB
Sulfate	12-22-89		mg/L	1.0	25151-5	<1.0	5.2	5.2	0.0	5.0	9.8	92.0			99.0	LAB
Nitrate/Nitrite	12-21-89		mg/L	0.15	25151-5	<0.15	6.22	6.27	18.2	1.77	2.30	118			101	LAB

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

• The LCS for Nitrate/Nitrite is reported @DL.

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

MC = Not Calculable

FORM 006

01/21/1991

Rocking Environmental Laboratory

5020 Caterpillar Road Rocking California 96003

2445227

METHOD BLANKS

TFH-Diesel (CA Method)



M E T H O D B L A N K

RB-11-17
LABORATORY NO.: ~~84-21582~~
 12/89
DATE TESTED: 11-23-88

ANALYSIS: TFH Diesel

MATRIX: soil

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	1	1

COMMENTS:

analyst BB



METHOD BLANK

LABORATORY NO.: ^{RB-11-22}
~~B/K 21621~~
^{PN. 4/20/89}
DATE TESTED: 11-28-88

ANALYSIS: TFH Diesel

MATRIX: SOI

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<1	1

COMMENTS:

Analyst B.B.



METHOD BLANK

LABORATORY NO.: ^{RB-11-23}
~~21654~~ 21650
21645 P.N. 12/20/89
DATE TESTED: 12-15-88

ANALYSIS: TFH Diesel

MATRIX: ~~SD~~ /

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

COMMENTS:

Analyst BB



METHOD BLANK

RB-11-29
LABORATORY NO.: ~~B/K 21658~~
~~61657~~ P.N. 42018
DATE TESTED: 12-19-88

ANALYSIS: TFH Diesel

MATRIX: soil

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

COMMENTS:

BB



M E T H O D B L A N K

RB-12-1
LABORATORY NO.: ~~216548/K~~
P.N. 6120189
DATE TESTED: 12-22-88

ANALYSIS: T = H Diesel

MATRIX: SO, /

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)

TFH DIESEL	< 1	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

Analyst BB



METHOD BLANK

LABORATORY NO.: ^{RB-12-7}
~~24716~~

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 12-27-88

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)

TFH DIESEL	<1	21
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

Analyst BB



M E T H O D B L A N K

26-12-9
LABORATORY NO.: ~~B/K 12/9~~
DATE TESTED: ~~(2+734) PN~~ 12-29-88 ^{6/20/89}

ANALYSIS: TFH Diesel

MATRIX: SDI

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<4	4
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

Analyst BB



METHOD BLANK

RB-12-14
LABORATORY NO.: ~~BK 71739~~
PR. 4/22/89
DATE TESTED: 1-4-89

ANALYSIS: TFH Diesel MATRIX: 50,1

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 2	2

COMMENTS:



M E T H O D E L A N I

RB-12-15
LABORATORY NO.: ~~BK-21740~~
PN 6120189
DATE TESTED: 1-5-89

ANALYSIS: TFH Diesel

MATRIX: SOI 1

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<5	5

COMMENTS:



EB-12-19

METHOD BLANK

~~RS-12-14 RN~~

LABORATORY NO.: ~~814-21774 RN~~ 420189

ANALYSIS: TFH Diesel

MATRIX: soil

DATE TESTED: 1-6-89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)

TFH DIESEL	<4	4
	-----	-----
	-----	-----

COMMENTS:

Analyst BB



METHOD BLANK

RG-12-21

LABORATORY NO.: ~~31K21786~~ ^{PN. 6/20/89}
(21789)
DATE TESTED: 1-10-89

ANALYSIS: TFH Diesel

MATRIX: soil

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)

TFH DIESEL	<5	5
-----	-----	-----
-----	-----	-----
-----	-----	-----

1-11-89

COMMENTS:

Analyst BB



METHOD BLANK

LABORATORY NO.: RB-12-22
B/K 21804

DATE TESTED: 1-19-89 21804
21806

21830

21831

21794

COMPOUND

TFH DIESEL

ANALYSIS: TFH Diesel

MATRIX:
SOI

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

< 1

1

COMMENTS:

Analyst BB



METHOD BLANK

RB-12-23

LABORATORY NO. *21372*

ANALYSIS: *TFH Diesel*

MATRIX: *Soil*

DATE TESTED: *1-22-39*

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<i>< 1</i>	<i>1</i>

COMMENTS:

Re. abtst 33



METHOD BLANK

RG-12-27

LABORATORY NO.: ~~BTK 21841~~ 6/20/87
2.378

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 1-25-89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION- LIMIT (PPM)
TFH DIESEL	< 1	1

1/30/89

COMMENTS:

Analyst BB



METHOD BLANK

RB-12-28
LABORATORY NO.: ~~B/H 21859~~ PN.
DATE TESTED: 1-26-89 ^{620/89}

ANALYSIS: TFH Diesel

MATRIX: SOI

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<1	1

1/30/89

COMMENTS:



METHOD BLANK

LABORATORY NO.: ^{RB-12-29}
~~21872~~ ^{P.N.} 6/20/89

ANALYSIS: TFH-Diesel

MATRIX: Sox

DATE TESTED: 1/27/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

Pr 1/30/89

COMMENTS:



METHOD BLANK

R.B-12-30
LABORATORY NO. ~~Inst. 811~~
B/K 21879 PN 420/69
DATE TESTED: 1-30-89

ANALYSIS: TFH Diesel

MATRIX: SO: 1

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<1	1

Mr
2/1/89

COMMENTS:

CHMILL

METHOD BLANK

RB-1-3
LABORATORY NO.: ~~B/K 21919~~
P.N. 6/20/87
DATE TESTED: 1-31-89

ANALYSIS: TFH Diesel

MATRIX: SDI

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<1	1

rec
2/1/89

COMMENTS:



METHOD BLANK

LABORATORY NO. ^{RS-1-4}~~21930~~
DATE TESTED: 2/2/89 _{ON 4/20/89}

ANALYSIS: TFH Diesel MATRIX: Soil

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

COMMENTS:

7-8-89 DB



METHOD BLANK

LABORATORY NO.: *RB-1-17*
81K 21979
DATE TESTED: *2-1-89*

ANALYSIS: *TFH Diesel*

MATRIX:
Soil

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)

TFH DIESEL	<i><1</i>	<i>1</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

Analyt BB



METHOD BLANK

LABORATORY NO.: ^{EB-1-19} 22002

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 2/5/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	<1	1

COMMENTS:

BB 2-10-89



METHOD BLANK

LABORATORY NO.: ^{RB-1-23}
~~22042~~

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 2/10/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

COMMENTS:

2-10-89 BB



METHOD BLANK

LABORATORY NO.: ^{RB-1-24}
~~22080~~

ANALYSIS: TFA Diesel

MATRIX: Soil

DATE TESTED: 2/15/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFA DIESEL	<1	1

VB 2-21-80

COMMENTS:



METHOD BLANK

LABORATORY NO.: ^{RB-1-24}~~22124~~

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 2/16/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)

TFH DIESEL	<1	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

BD 2-21-89



Spectra
Physics

METHOD BLANK

LABORATORY NO.: 23118
23114

ANALYSIS: TFH Diesel MATRIX: Soil

DATE TESTED: 5/4/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 1	1

per

COMMENTS:

METHOD BLANK

LABORATORY NO.: Blank 22345

ANALYSIS: TFH Diesel

MATRIX: Wat

DATE TESTED: 2/22/89

COMPOUND	SAMPLE RESULT (PPM) CS PPB	DETECTION LIMIT (PPM) CS PPB
TFH DIESEL	< 50	50

COMMENTS:

BB 2-24-89



METHOD BLANK

LABORATORY NO.: Blank 22333
DATE TESTED: 2/22/89

ANALYSIS: TFH Diesel MATRIX: Water

COMPOUND	SAMPLE RESULT (PPM) CS ppb	DETECTION LIMIT (PPM) CS ppb
TFH DIESEL	< 50	50

COMMENTS:

2/22/89
EB

METHOD BLANK

LABORATORY NO.: Blank 22375

ANALYSIS: TFH Diesel

MATRIX: Wt 2

DATE TESTED: 2/22/89

COMPOUND	SAMPLE RESULT (PPM)CS ppb	DETECTION LIMIT (PPM)CS ppb
TFH DIESEL	<50	50

COMMENTS:

2-24-89 BB

METHOD BLANK

LABORATORY NO.: 22421 Blank

ANALYSIS: TFH Diesel

MATRIX: water

DATE TESTED: 2/23/89

COMPOUND	SAMPLE RESULT (PPM) ppb	DETECTION LIMIT (PPM) ppb
TFH DIESEL	<50	50

COMMENTS:



METHOD BLANK

Blank
LABORATORY NO.: 22542 22428 ANALYSIS: TFH Diesel MATRIX: Wc
22553
DATE TESTED: 3/21

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	< 0.05mg/l	< 0.05mg/l

COMMENTS:



METHOD BLANK

LABORATORY NO.: 22643, 644, 651 ANALYSIS: TFH Diesel MATRIX: Water
22660, 674
DATE TESTED: 3/22/89

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
TFH DIESEL	<0.05	<0.05

COMMENTS:

11/11/89
3/24/89



METHOD BLANK

LABORATORY NO.: 22739
22683
22738
DATE TESTED: 4-4-89

ANALYSIS:
TFH-DIESEL

MATRIX:
WATER

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	6.05	0.05

COMMENTS:



METHOD BLANK

LABORATORY NO.: Method Blank

ANALYSIS:

MATRIX:

DATE TESTED:

3-22

TFH DIESEL

WATER

4-5-89

22760

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH DIESEL

<0.05

0.05

COMMENTS:

pr

CAMHILL

METHOD BLANK

LABORATORY NO.:

DATE TESTED: 4/12

COMPOUND

TFH DIESEL

22890

22891

22906

22874

22915

22915

22930

ANALYSIS:

TFH Diesel

MATRIX: Water

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

Blank 4/4

Blank 4/7

20.05

20.05

0.05

0.05

COMMENTS:

[Signature]



23320
23325
23324
23307
23306
23293
23291

METHOD BLANK

LABORATORY NO.:

ANALYSIS: TFF Diesel

MATRIX:

Soil
+
Water

DATE TESTED: 6/2/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	Blank 5/31 (soil) <1	1
	Blank 5/30 (water) <0.05	0.05
	Blank 5/31 (water) <0.05	0.05

Detection Limit

$$1\text{ml} \times \frac{0.05\text{mg}}{\text{ml}} = \frac{0.05\text{mg}}{1\text{L}} = 0.05\text{mg/L water}$$

$$1\text{ml} \times \frac{0.05\text{mg}}{\text{ml}} = \frac{0.05\text{mg}}{0.05\text{kg}} = 1\text{mg/kg soil}$$

COMMENTS:

gm 6-5-89



23358
23357
23372
23411

METHOD BLANK

LABORATORY NO.:

ANALYSIS: TFH Diesel

MATRIX: Water

DATE TESTED: 6/7/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	Blank 6/5	0.05
	Blank 6/7	0.05

Detection Limit

$$1 \text{ ml} \times \frac{0.05 \text{ mg}}{\text{ml}} = \frac{0.05 \text{ mg}}{1 \text{ l}} = 0.05 \text{ mg/l water}$$

COMMENTS:

m



23473 6/15 METHOD BLANK

23443, 23442 6/12

LABORATORY NO.: 23417 6/8

ANALYSIS: TFH Diesel

MATRIX: H₂C
+ Soil

DATE TESTED: 6/20/89

COMPOUND		SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL	Blank 6/8	<0.05	0.05
	Blank 6/12	<0.05	0.05
	Blank 6/15	<1	1

Detection Limit Water:

$$1 \text{ ml} \times \frac{0.05 \text{ mg}}{\text{ml}} = \frac{0.05 \text{ mg}}{1 \text{ L}} = 0.05 \text{ mg/L}$$

Detection Limit soil:

$$1 \text{ ml} \times \frac{0.05 \text{ mg}}{\text{ml}} = \frac{0.05 \text{ mg}}{0.05 \text{ kg}} = 1 \text{ mg/kg}$$

COMMENTS:

for 6-21-89



23469

23468

23454

23521

23500

METHOD BLANK

LABORATORY NO.: 23510

ANALYSIS: TFH Diesel

MATRIX: water
+
Soil

DATE TESTED: 6/21/89

COMPOUND	- SAMPLE RESULT (PPM)	DETECTION - LIMIT (PPM)
TFH DIESEL (soil) Blank (23510)	< 2	2
(water) Blank (23500)	< 0.05	0.05
water Blank (23454)	< 0.05	0.05

Detection Limit water:

$$1 \text{ ml} \times \frac{0.05 \text{ mg}}{\text{ml}} = \frac{0.05 \text{ mg}}{1 \text{ l}} = 0.05 \text{ mg/l}$$

Detection Limit soil:

$$1 \text{ ml} \times \frac{0.05 \text{ mg}}{\text{ml}} = \frac{0.05 \text{ mg}}{.03 \text{ kg}} = 1.67 \text{ report } 2 \text{ mg/kg}$$

COMMENTS:

Detection Limit higher for soils (23510), extraction used 30 grams instead of 50 grams.



METHOD: TFM DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0603

Reference No: 24158-1

Sample Matrix: Water

Date Sampled: 8-25-1989
Date Received: 8-28-1989
Date Extracted: 8-31-1989
Date Analyzed: 9-9-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFM Diesel	0.05	<0.05	<0.05
Surrogate (SS)		101	51

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: fray frank

000004



Engineers
Planners
Economists
Scientists

METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0606

Reference No: 24185-1

Sample Matrix: Water

Date Sampled: 8-28-1989
Date Received: 8-30-1989
Date Extracted: 9-5-1989
Date Analyzed: 9-9-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		60	62

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Greg Joubert

000023



Engineers
Planners
Economists
Scientists

METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0614

Reference No: 24191-1

Sample Matrix: Water

Date Sampled: 8-30-1989

Date Received: 8-31-1989

Date Extracted: 9-6-1989

Date Analyzed: 9-9-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		67	65

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Jones

000069

METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0617

Reference No: 24202-2

Sample Matrix: Water

Date Sampled: 08/31/89
Date Received: 09/01/89
Date Extracted: 09/06/89
Date Analyzed: 09/09/89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		100%	62%

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: 

000093

METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0628

Reference No: 24246-1

Sample Matrix: Water

Date Sampled: 9-06-89
Date Received: 9-07-89
Date Extracted: 9-18-89
Date Analyzed: 9-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		100	165

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Jones

000145



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0623

Reference No: 74242-3

Sample Matrix: Water

Date Sampled: 9-06-89
Date Received: 9-07-89
Date Extracted: 9-18-89
Date Analyzed: 9-28-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		100	158

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Joubert

000115



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0631

Reference No: 24265-1

Sample Matrix: Water

Date Sampled: 9-06-89
Date Received: 9-07-89
Date Extracted: 9-18-89
Date Analyzed: 9-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		100	95

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gay Jones

000162



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0635

Reference No: 24272-3

Sample Matrix: Water

Date Sampled: 9-06-89
Date Received: 9-07-89
Date Extracted: 9-18-89
Date Analyzed: 9-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		100	94

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Jonh

00018E



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0637

Reference No: 24304-2

Sample Matrix: Water

Date Sampled: 9-12-89
Date Received: 9-13-89
Date Extracted: 9-20-89
Date Analyzed: 9-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		102	112

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Jones

600205



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0639

Reference No: 24313-1

Sample Matrix: Water

Date Sampled: 9-13-89
Date Received: 9-14-89
Date Extracted: 9-20-89
Date Analyzed: 9-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		102	112

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Joubert

000223



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0644

Reference No: 24331-3

Sample Matrix: Water

Date Sampled: 9-14-89
Date Received: 9-15-89
Date Extracted: 9-20-89
Date Analyzed: 9-30-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		102	72

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Joubert

000246



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0649

Reference No: 24350-1

Sample Matrix: Water

Date Sampled: 9-18-89
Date Received: 9-19-89
Date Extracted: 9-29-89
Date Analyzed: 10-19-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	2.2
Surrogate (SS)		184	102

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Greg Jordan

000268



METHOD: TFH DIESEL

Client: Beale Air Force Base
Client Sample ID: BAFB0656

Reference No: 24372-1

Sample Matrix: Water

Date Sampled: 9-19-89
Date Received: 9-20-89
Date Extracted: 9-29-89
Date Analyzed: 10-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (SS)		81	91

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Anthracene used as surrogate standard.

Approved By: Gray Jones

00029C



Engineers
Planners
Economists
Scientists

METHOD: TFH DIESEL

Client: Beale AFB
CH2M HILL/SAC
SAC 24359.RI.04
Client Sample ID: BAFB 0688
Sample Matrix: Water

Reference No: 24898-2

Date Sampled: 11-15-89
Date Received: 11-16-89
Date Extracted: 11-20-89
Date Analyzed: 12-14-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.12
Surrogate (SS)		N/R	N/R

Results reported as mg/L.

Comments: N/R = Not reportable; refer to case narrative for explanation of surrogate standards.

Approved By: Greg Jordan



METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0699
Sample Matrix: Water

Reference No: 24934-1
Date Sampled: 11-19-89
Date Received: 11-20-89
Date Extracted: 11-22-89
Date Analyzed: 12-15-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	< 0.05	0.07
Surrogate (Diesel)		94	78

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Greg Jordan



Engineers
Planners
Economists
Scientists

METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0700

Reference No: 24939-1

Sample Matrix: Water

Date Sampled: 11-20-89
Date Received: 11-21-89
Date Extracted: 11-22-89
Date Analyzed: 12-15-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.09
Surrogate (Diesel)		94	78

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Greg Joulm



METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0704

Reference No: 24954-2

Sample Matrix: Water

Date Sampled: 11-21-89
Date Received: 11-22-89
Date Extracted: 11-27-89
Date Analyzed: 12-15-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.06
Surrogate (Diesel)		121	85

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Gay Jordan

METHOD: TFH DIESEL

Client: Beale AFB
 Client Sample ID: BA7B 0705

Reference No: 24957-1

Sample Matrix: Water

Date Sampled: 11-21-89
 Date Received: 11-22-89
 Date Extracted: 11-27-89
 Date Analyzed: 12-15-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.06
Surrogate (Diesel)		121	88

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
 Docosane used as Diesel surrogate standard.

Approved By: *[Signature]*

METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0713

Reference No: 25010-2

Sample Matrix: Water

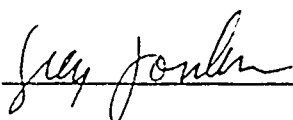
Date Sampled: 11-28-89
Date Received: 11-29-89
Date Extracted: 11-29-89
Date Analyzed: 12-14-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.10
Surrogate (Diesel)		88	76

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: 



METHOD: TFH DIESEL

Client: Beale AFB
CH2M HILL/SAC
SAC 24359.RI.04
Client Sample ID: BAFB 0714
Sample Matrix: Water

Reference No: 25020-1
Date Sampled: 11-29-89
Date Received: 11-30-89
Date Extracted: 12-04-89
Date Analyzed: 12-16-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.07
Surrogate (SS)		87	82

Results reported as mg/L.

Comments:

SS - Surrogate standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Gley J. J. J.



METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0725

Reference No: 25059-4

Sample Matrix: Water

Date Sampled: 12-01-89
Date Received: 12-01-89
Date Extracted: 12-04-89
Date Analyzed: 12-16-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.06
Surrogate (Diesel)		87	88

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: *Greg Jonker*



METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0730

Reference No: 25118-1

Sample Matrix: Water

Date Sampled: 12-05-89
Date Received: 12-06-89
Date Extracted: 12-07-89
Date Analyzed: 12-18-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	0.07
Surrogate (Diesel)		73	85

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Greg Joubert



Engineers
Planners
Economists
Scientists

METHOD: TFH DIESEL

Client: Beale AFB
Client Sample ID: BAFB 0732

Sample Matrix: Water

Reference No: 25151-1

Date Sampled: 12-06-89
Date Received: 12-08-89
Date Extracted: 12-12-89
Date Analyzed: 12-18-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Diesel	0.05	<0.05	<0.05
Surrogate (Diesel)		84	63

Results reported as mg/L.

Comments:

SS - Surrogate Standard reported as percent recovery.
Docosane used as Diesel surrogate standard.

Approved By: Greg Jonker

METHOD BLANKS

TFH-Gasoline (CA Method)



M E T H O D B L A N K

LABORATORY NO.: 21621-14-20

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 11/30/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
PFH/Gas	<1	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS: 21621-14, 15, 16, 17, 18, 20

Analyst: gny

1/11/89



METHOD BLANK

LABORATORY NO.: 21621

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 11/30/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
THF/Gas	1.2	4.2
	<1	1

Mr
11/2/89

COMMENTS: Samples Analyzed: 21621-1, 2, 3, 4, 5, 6, 7, 11, 12, 13
Higher detection limit reported due to high
method blank.

Analyst: [Signature]



METHOD BLANK

LABORATORY NO.:

ANALYSIS: *Gasoline*

MATRIX: *water*

DATE TESTED: *12-1-88*

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
TFH/Gas	<i><1</i>	<i>1</i>
	<i><1</i>	<i>1</i>

COMMENTS: *Samples : 21621-21, 22, 23, 24*
21629-1, 5, 6, 7, 8, 9, 10, 11

Analyst: smg

W- 11/2/88



METHOD BLANK

LABORATORY NO.: 21645

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 12/4/88

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
THF/Gas	41	1

COMMENTS: 21645-1, 2, 3, 4 & 21644-1, 2, 3

Per 1/1/89



METHOD BLANK

LABORATORY NO.: 21662-175

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 12-3-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	41	1

COMMENTS: Analyst: *gny*

12/17/88



M E T H O D B L A N K

LABORATORY NO.: ~~21574~~, 21603, 21633 ANALYSIS: *Gasoline*
21649, 21650, 21574
DATE TESTED: 12/4/88

MATRIX: *Water*

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT - (FPM)
TFH/Gas	41	1
	41	1

COMMENTS: *Analyst: 824*

12/11/88



METHOD BLANK

LABORATORY NO.: 21656, 21645, 21654 ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 21657, 21658
12/5/88

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
TFH/Gas	41	1

COMMENTS: Reference No: 21656-1, 3, 4, 5, 6; 21645-3, 4; 21654-1
21657-2, 3, 4, 5; 21658-2, 3, 4, 5, 6; ~~21659-2, 3, 4, 5, 6, 7, 8~~ ^{see}
Analyst: gny



METHOD BLANK

LABORATORY NO.: 21659, 21676

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 12-6-88

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
TFH/Gas	41	1

COMMENTS: 21659-2 → 8 & 21676-2, 3, 4, 5

Analyst: gny..



METHOD BLANK

LABORATORY NO.: 21676-2, 21677-275 ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12-7-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	21	1

COMMENTS: Analyst: 872

1/2/89



METHOD BLANK

LABORATORY NO.: 21729-3, 21698-1
21716, 21770
DATE TESTED: 12/8/88

ANALYSIS: Gasoline

MATRIX: water

COMPOUND	SAMPLE RESULT (F.M)	DETECTION LIMIT (PPM)
FFH/Gas	4	1

COMMENTS: 21729-3, 21698-1, 21716-277, 21770

Analyst: *gcy*

12/11/88



METHOD BLANK

ATORY NO.: 21770, 21727, 21717 ANALYSIS: Gasoline
DATE TESTED: 12/1/88

MATRIX: Water

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	21	1
	4	1

COMMENTS: 21770, 21727-2 → 7, 21717-2 → 6

analyst: gny

12/1/88



METHOD BLANK

LABORATORY NO.: 21725-2-8

ANALYSIS: Gasoline

MATRIX: Wa

DATE TESTED: 12/10/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	<1	1

COMMENTS: analyst: gny

Mr 1/12/89

METHOD BLANK

LABORATORY NO.: 21725, 21733, 21734 ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12-12-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	4	1

Per
11/7/84

COMMENTS: 21725-2→8; 21733-2→5; 21734-2→8

Analyst: gny



METHOD BLANK

LABORATORY NO.: 21725-8; 21733, 21734 ANALYSIS: Gasoline

MATRIX: W

DATE TESTED: 12-13-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	<1	1

11/12/89

COMMENTS: 21725-8, 21733-3, 4, 5; 21734-9, 10

Analyst: gmj



M E T H O D B L A N K

STORY NO.: 21729, 21739, 21740 ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12-14-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
W/Gas	21	(
-----	-----	-----
-----	-----	-----
-----	-----	-----

Pr
11/2/89

INUMENTS: 21729-1, 21739-2, 21740-2, 3

Analyst: *guy*



METHOD BLANK

LABORATORY NO.: 21729

ANALYSIS: Gasoline

MATRIX: wa

DATE TESTED: 12-15-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/gas	4	1

COMMENTS: 21729-3,4,1

YH

1/12/89



METHOD BLANK

LABORATORY NO.: 21729, 21740

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12/16/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TH/Gas	41	1

COMMENTS: 21729-7, 2, 3, 4
21740-4, 5, 6, 7

Analyst: gm

11/12/89



METHOD BLANK

LABORATORY NO.: 21729, 21740, 21757 ANALYSIS: Gasoline
DATE TESTED: 12-17-88 21758 21766

MATRIX: Water

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	41	1

INUMENTS: 21729-1, 2, 4.5; 21740-2, 9; 21757-2, 7, 21758-2, 3, 4
21766-1

W
11/25/88

Analyst: JCY



METHOD BLANK

LABORATORY NO.: 21771, 4, 5, 21786

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12-18-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
CH ₄ /Gas	41	1

COMMENTS: 21771-276; 21774-278; 21775-278, 21786-2

Analyst: Guy

1/12/89

WILLIS

METHOD BLANK

LABORATORY NO. 21740, 757, 771, 774
775, 786, 21788
DATE TESTED: 12-19-88 21789

ANALYSIS: Gasoline

MATRIX: Wt

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
H/Gas	<1	1

COMMENTS: 21740-6, 21757-3, 21771-3, 4, 5, 6; 21774-2, 3, 4, 5
21775-8, 21786-3, 4, 5; 21787-2, 3, 4, 5; 21788-2, 7, 9
21789-2, 3, 4

Analyst: SM

1/17/89

PERMUTITELAN

ANALYSIS: *Gasoline*
 TESTED: 12-70-81
 21794, 21806-2-2-2
 21803-2-2-2

MATRIX: *water*

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (PPM)
-----	✓1	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

3. Analytical

2-750-1, 2-83, 2-790-1, 2-21811-1, 2-33 2-1854,
 2-780-5, 2-1806-2-2-56 7, 8, 2-803-2-2-2



METHOD BLANK

LABORATORY NO.: 21804, 5; 21830

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 12-21-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	41	1

COMMENTS: 21804-2, 3, 4; 21805-2, 3, 8; 21830-2, 3, 4, 5, 6, 7

Analyst: gny

12/21/88



M E T H O D B L A N K

LABORATORY NO.: 21831, 21832

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12-22-88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	41	(
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS: 21831-2→8; 21832-2→6

Analyst: *guz*

11/12/89



M E T H O D B L A N K

LABORATORY NO.: *End of run*

ANALYSIS: *Caroline*

MATRIX: *Water*

DATE TESTED: *12/23/88*

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH / <i>Gas</i>	<i>CL</i>	<i>1</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS: *End of run*

Analyst: *82*

Mr 1/1/89



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX: *Soil*

DATE TESTED: *12/24*

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	<i>410 ppm</i>	<i>10 ppm</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:



METHOD ELANK

LABORATORY NO.:

ANALYSIS:

MATRIX: *Sea*

DATE TESTED: *12-27-88*

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	<i>620 ppm</i>	<i>20</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: 12/28

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH ~~DIESEL~~ GAS

65 ppm

5 ppm

COMMENTS:



METHOD BLANK

LABORATORY NO.: 21860

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12/28/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	<1	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS: 21860-2 → B

gny

pw 1/12/89



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: 12/29

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH ~~STEEL~~ GAS

--- 20 ppm ---

--- 20 ppm ---

COMMENTS:



METHOD PLAN

LABORATORY NO.: 21766-2; 21860-8
21832-2, 3;

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 12/29/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	41	1
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS: *sm**pu
9/12/89*



METHOD BLANK

LABORATORY NO.: 21919

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 12/30/88

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH/Gas	cl	1
	cl	1

COMMENTS: *any**11/2/89*



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: 12/31/87

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH ~~CECIL~~ GAS

15 ppm

5 ppm

COMMENTS:



METHOD BLANK

LABORATORY NO.: 21905, 21920
21923

ANALYSIS: Gasoline

MATRIX: Water

DATE TESTED: 1/3/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
-----	-----	-----
TFH/Gas	41	1
-----	-----	-----
-----	-----	-----

COMMENTS:

M. J. H. 1/11/89



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX: *Sol*

DATE TESTED: *1/4/89*

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	<i>4.10 ppm</i>	<i>7.0 ppm</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:



M E T H O D B L A N K

LABORATORY NO.:

ANALYSIS:

MATRIX:

Sand

DATE TESTED: *1/6/84*

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH STEEL GAS	<i>410 ppm</i>	<i>10 ppm</i>
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:





METHOD BLANK

LABORATORY NO.:

ANALYSIS: TFH

MATRIX: Soil

DATE TESTED: 1/13/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	16 ppm	20 ppm

COMMENTS:



METHOD BLANK

LABORATORY NO.: 21905, 21925,
21923

ANALYSIS: Gasoline

MATRIX: water

DATE TESTED: 1/4/89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
-----	-----	-----
HFH/GAS	21	1
-----	-----	-----
	21	1
-----	-----	-----
	-----	-----

COMMENTS:

1/12/89



METHOD BLANK

LABORATORY NO.:

DATE TESTED:

ANALYSIS:

MATRIX:

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH CHLOR GAS	#1 15	20 ppm
	#2 16	
	#3 13	

BB 1-19-89

COMMENTS:



M E T H O D B L A N K

LABORATORY NO.: 119187

ANALYSIS:

MATRIX:

DATE TESTED:

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH ALCOHOL GAS	17 ppm	420
-----	-----	-----
-----	-----	-----
-----	-----	-----

COMMENTS:

1-20-84 BJ



M E T H O D B L A N K

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: 1/23/85

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH ALCOHOL GAS	#1 8	<10
	#2 <10	<10

1-30-89
1-20-89

COMMENTS:



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX: *water*DATE TESTED: *2/17/89*COMPOUND

TFH ~~21500~~ **GAS**SAMPLE
RESULT
(PPM)DETECTION
LIMIT
(PPM) *m**** *0.48*
-----*0.50.1*
-----*0.175*
-----*0.1*
-----BTEX ~~*1.5*~~ *1.5*
-----COMMENTS: *elevated background due to calibration to prior**DJ 2-21-89*



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: Feb 23

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH SECRET GAS	.024 mg/l	0.1 mg/l
ME	1.0	1 mg/l
TEX	1.0	1 mg/l

COMMENTS:

2-21-86 BD



METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED: Feb 25

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	0.168	^{0.1} 0.168
BTEX	< 1 ug/l	1 ug
mtBE	< 1 ug/l	

COMMENTS:

00 2-27-89



METHOD BLANK

LABORATORY NO.: 22612
DATE TESTED: 22644
3/13/89

ANALYSIS: BTEX/gas

MATRIX: water & oil

COMPOUND

TFH ~~gas~~ GAS

BTEX

SAMPLE
RESULT
(FPM)

DETECTION
LIMIT
(FPM)

41^{pm} 61

0.1 ug/l

51 ug/l

1 ug/l

COMMENTS:



METHOD BLANK

LABORATORY NO.: 22738
22739

ANALYSIS:

MATRIX:

DATE TESTED: 3/27/80

3/27

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH ~~SOLVENT~~ GAS

0.1

0.1

JM

3-28-89

COMMENTS:



METHOD BLANK

LABORATORY NO.: 22790, 791, 814, 817

ANALYSIS:

MATRIX:

DATE TESTED: 3-28-89

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH STEEL GAS	<0.1 ppm	<1 ppm
BTEX	<1 ug/l	1 ug/l

COMMENTS:

RB
3-31-89

CAMHILL

METHOD BLANK

LABORATORY NO.: 22848, 22849, 22870 ANALYSIS:

MATRIX:

DATE TESTED: 4/4 22871, 22874

COMPOUND	SAMPLE RESULT (FPM)	DETECTION LIMIT (FPM)
TFH STEEL GAS	10.1 ^{ok} gm	0.1
BEA	< 1 ppb	1 mb

gm
4-10-89

COMMENTS:



22840 22913
22841 22914
22842 22915
22843 22916
22844 22917
22845 22918
4/7/84

METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED:

COMPOUND

SAMPLE
RESULT
(FPM)

DETECTION
LIMIT
(FPM)

TFH ~~22840~~ GAS

NOTE: < 0.1 mg/L
1.4 mg/L
0.1
1.4

COMMENTS:



METHOD BLANK

LABORATORY NO.:

DATE TESTED:

ANALYSIS:

MATRIX:

COMPOUND	SAMPLE RESULT (PPM)	DETECTION LIMIT (PPM)
TFH DIESEL GAS	LS	5
DTEX	LSO <i>g/g</i>	50 <i>g/g</i>
		5-11-8

COMMENTS:

CRISTAL

METHOD BLANK

LABORATORY NO.: 23320 122
23391
23393
23394
23395
23396
23397
23398
23399
23400
23401
23402
23403
23404
23405
23406
23407
23408
23409
23410
23411
23412
23413
23414
23415
23416
23417
23418
23419
23420
23421
23422
23423
23424
23425
23426
23427
23428
23429
23430
23431
23432
23433
23434
23435
23436
23437
23438
23439
23440
23441
23442
23443
23444
23445
23446
23447
23448
23449
23450
23451
23452
23453
23454
23455
23456
23457
23458
23459
23460
23461
23462
23463
23464
23465
23466
23467
23468
23469
23470
23471
23472
23473
23474
23475
23476
23477
23478
23479
23480
23481
23482
23483
23484
23485
23486
23487
23488
23489
23490
23491
23492
23493
23494
23495
23496
23497
23498
23499
23500

DATE TESTED: 5/3/87

ANALYSIS:

MATRIX:

COMPOUND

TFH ~~DIETHYL~~ GAS

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

DI

< 0.1

0.1

BTEX

< 1 ppb

1 ppb

QAM
6-2-89

COMMENTS:

CMH

METHOD BLANK

LABORATORY NO.:

23357
23358, 1-2
23372, 1-4
23361, 1-2

ANALYSIS:

MATRIX:

DATE TESTED:

6/5/89

COMPOUND

TFH ~~CEC~~ **GAS**

Soil & water

VSTW

SAMPLE
RESULT
(FPM)

DETECTION
LIMIT
(FPM)

H₂O soil
L 0.1 ppm L 5 ppm

0.1 ppm 5 ppm

L 1 ppb L 50 ppb

1 ppb 50 ppb

Qm 6-8-89

COMMENTS:

CAUTION

23411 1-3
23417
23418
junk

METHOD BLANK

LABORATORY NO.:

ANALYSIS:

MATRIX:

DATE TESTED:

COMPOUND

SAMPLE
RESULT
(FPM)

DETECTION
LIMIT
(FPM)

TFH ~~STEEL~~ GAS

< 0.1

0.1

COMMENTS:

METHOD BLANK

LABORATORY NO.:

DATE TESTED:

COMPOUND

TFH ~~6-20-89~~ GAS

ANALYSIS:

MATRIX:

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

oil 45
water 40.1
BTEX 41 ppb

5
0.1
1 ppb

COMMENTS:

GM
6-20-89



LABORATORY NO.:

DATE TESTED:

METHOD BLANK

ANALYSIS:

MATRIX:

COMPOUND

SAMPLE
RESULT
(PPM)

DETECTION
LIMIT
(PPM)

TFH ~~STEEL~~ GAS

6/16
LO.1

0.1

9M
6-20-82

COMMENTS:



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0603

Reference No: 24158-1

Sample Matrix: Water

Date Sampled: 8-25-1989
Date Received: 8-28-1989
Date Analyzed: 8-29-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		93	103

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: gray jones



METHOD: FH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0606

Reference No: 24185-1

Sample Matrix: Water

Date Sampled: 8-28-1989
Date Received: 8-30-1989
Date Analyzed: 9-5-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		75	100

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jenkins

000050



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0614

Reference No: 24191-1

Sample Matrix: Water

Date Sampled: 8-30-1989
Date Received: 8-31-1989
Date Analyzed: 9-5-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		75	140

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Ray Jowle

000092



Engineers
Planners
Economists
Scientists

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0617

Reference No: 24202-2

Sample Matrix: Water

Date Sampled: 8-31-1989
Date Received: 9-1-1989
Date Analyzed: 9-12-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		100	65

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray J. J. J.

000107



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0628

Reference No: 24246-1

Sample Matrix: Water

Date Sampled: 9-7-1989
Date Received: 9-8-1989
Date Analyzed: 9-12-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		100	124

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Greg Joubert

000155



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0623

Reference No: 24242-3

Sample Matrix: Water

Date Sampled: 9-6-1989
Date Received: 9-7-1989
Date Analyzed: 9-12-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		100	96

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gay Joubert

G00132



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0631

Reference No: 24265-1

Sample Matrix: Water

Date Sampled: 9-8-89
Date Received: 9-11-1989
Date Analyzed: 9-12-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		100	82

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Greg J. Foster

000176

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0632

Reference No: 24272-2

Sample Matrix: Water

Date Sampled: 9-11-1989
Date Received: 9-12-1989
Date Analyzed: 9-13-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		117	124

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jones

000195

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0636

Reference No: 24304-1

Sample Matrix: Water

Date Sampled: 9-12-1989
Date Received: 9-13-1989
Date Analyzed: 9-19-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		98	108

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: 

600213



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0639

Reference No: 24313-1

Sample Matrix: Water

Date Sampled: 9-13-1989
Date Received: 9-14-1989
Date Analyzed: 9-19-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		98	109

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gay Jones

000233



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0643

Reference No: 24331-2

Sample Matrix: Water

Date Sampled: 9-14-1989
Date Received: 9-15-1989
Date Analyzed: 9-25-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		85	70

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Joubert

000256

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0649

Reference No: 24350-1

Sample Matrix: Water

Date Sampled: 9-18-1989
Date Received: 9-19-1989
Date Analyzed: 9-25-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		85	78

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Greg Janku

000231

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0656

Reference No: 24372-1

Sample Matrix: Water

Date Sampled: 9-19-1989
Date Received: 9-20-1989
Date Analyzed: 9-25-1989

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		85	73

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jones

000305



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0688

Reference No: 24898-2

Sample Matrix: Water

Date Sampled: 11-15-89

Date Received: 11-16-89

Date Analyzed: 11-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		96	104

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Greg Janku



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0690

Reference No: 24925-2

Sample Matrix: Water

Date Sampled: 11-17-89
Date Received: 11-20-89
Date Analyzed: 11-30-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		110	107

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jones



Engineers
Planners
Economists
Scientists

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0699

Reference No: 24934-1

Sample Matrix: Water

Date Sampled: 11-19-89
Date Received: 11-20-89
Date Analyzed: 11-30-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		110	93

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: *[Signature]*



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0700

Reference No: 24939-1

Sample Matrix: Water

Date Sampled: 11-20-89
Date Received: 11-21-89
Date Analyzed: 11-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		96	100

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gay Jordan



CH2M HILL
ANALYTICAL
LABORATORY
REDDING, CALIF.

METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0705

Reference No: 24954-2

Sample Matrix: Water

Date Sampled: 11-21-89

Date Received: 11-22-89

Date Analyzed: 11-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		96	107

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jankin



METHOD: TFH Gas

Client: Beale Airforce Base
Client Sample ID: BAFB0705

Reference No: 24957-1

Sample Matrix: Water

Date Sampled: 11-21-89
Date Received: 11-22-89
Date Analyzed: 11-29-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		96	101

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Gray Jones



METHOD: TFH Gas

Client: Beale Air Force Base
Client Sample ID: BAFB0713

Reference No: 25010-1

Sample Matrix: Water

Date Sampled: 11-28-89
Date Received: 11-29-89
Date Analyzed: 12-1-89

Compounds	Detection Limit	Method Blank	Sample Result
TFH Gas	0.1	<0.1	<0.1
Surrogate (SS)		96	113

Results reported as mg/l.

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as surrogate standard.

Approved By: Greg Joubert



METHOD: TFH - GAS

Client: Beale Air Force Base
Client Sample ID: BAFB-0714

Reference No: 25020-1

Sample Matrix: Water

Date Sampled: 11-29-89
Date Received: 11-30-89
Date Analyzed: 12-14-89

<u>Compounds</u>	<u>Detection Limit</u>	<u>Method Blank</u>	<u>Sample Result</u>
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		112	86

Comments: Results reported as mg/l.
SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as Gas surrogate standard.

Approved By: Gay Jordan

METHOD: TFH - GAS

Client: Beale Air Force Base
Client Sample ID: BAFB-0725

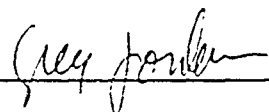
Reference No: 25059-4

Sample Matrix: Water

Date Sampled: 12-01-89
Date Received: 12-01-89
Date Analyzed: 12-14-89

<u>Compounds</u>	<u>Detection Limit</u>	<u>Method Blank</u>	<u>Sample Result</u>
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		112	115

Comments: Results reported as mg/l.
SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as Gas surrogate standard.

Approved By: 

Client: Beale Air Force Base
Client Sample ID: BAFB-0730

Reference No: 25118-1

Sample Matrix: Water

Date Sampled: 12-05-89
Date Received: 12-06-89
Date Analyzed: 12-14-89

<u>Compounds</u>	<u>Detection Limit</u>	<u>Method Blank</u>	<u>Sample Result</u>
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		112	106

Comments: Results reported as mg/l.
SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as Gas surrogate standard.

Approved By: Gray J. Jones



METHOD: TFH - GAS

Client: Beale Air Force Base
Client Sample ID: BAFB-0732

Reference No: 25151-1

Sample Matrix: Water

Date Sampled: 12-06-89
Date Received: 12-08-89
Date Analyzed: 12-14-89

<u>Compounds</u>	<u>Detection Limit</u>	<u>Method Blank</u>	<u>Sample Result</u>
TFH Gas	0.1	< 0.1	< 0.1
Surrogate (SS)		112	98

Comments: Results reported as mg/l.
SS - Surrogate Standard reported as percent recovery.
Bromofluorobenzene used as Gas surrogate standard.

Approved By: Gray Joubert

METHOD BLANKS

ICP Metals (SW6010)

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	u	20	u	20	u			20	u	P
Antimony	30	u	30	u	30	u			30	u	P
enic	30	u	30	u	30	u			30	u	P
ium	10	u	10	u	10	u			10	u	P
Beryllium	0.5	u	0.5	u	0.5	u			0.5	u	P
Cadmium	1	u	1	u	1	u			1	u	P
Calcium	100	u	100	u	100	u			100	u	P
Chromium	3	u	3	u	3	u			3	u	P
Cobalt	4	u	4	u	4	u			4	u	P
Copper	3	u	3	u	3	u			3	u	P
Iron	10	u	10	u	10	u			10	u	P
Lead	20	u	20	u	20	u			20	u	P
Magnesium	100	u	100	u	100	u			100	u	P
Manganese	1.5	u	1.5	u	1.5	u			1.5	u	P
Mercury											
Nickel	4	u	4	u	4	u			4	u	P
Potassium	200	u	200	u	200	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	3	u	3	u	3	u			3	u	P
Sodium	100	u	100	u	100	u			100	u	P
Thallium	50	u	50	u	50	u			50	u	P
Vanadium	4	u	4	u	4	u			4	u	P
Zinc	2	u	2	u	2	u			2.518		P
Cyanide											NR
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 12/09/88 Ref # 21645
 21659 6-8
 21621 -24
 21676 2-3

: F-159 : - IN

7/3-
000072

U.S. EPA - CLP

3
BLANKSLab Name: C.H2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.2	u	0.2	u	0.2	u	0.2	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2.310	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21852
21676
21677 } ICP
21716 } 12-13-88
21717

21689-2
21677
21717 } Hg 12-12-88
21725

F-160 :: - IN

7/87
000073

U.S. EPA - CLP

3
BLANKSLab Name: CHARM HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Asenic		u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	3.142		P
Cyanide											NR

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: 86ALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3.46	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			26.87	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide		u		u		u				u	NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21753 }
758 } 1CP
771 } 12-21-88
774 }
775 }

21771 }
774 } Hg
775 } 12-24-88
786 }
788 }

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.06	u	0.06	u	0.06	u	0.06	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 12/06/88

21654
21656
21657
21658
21659 2-5

Hg 12/01/88

21654
21657

FC F-163 - IN

7/87
000070

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

Hg 12/06/88 Ref # 21658
 21659 3-8
 21676

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Asenic	300	u	300	u	300	u	300	u	30	u	F
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	40	u	40	u	40	u	40	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	40	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

2 7
5
21+27 } 1CP
21733 } 12-14-88
21734 }

21733 } 14
21734 }
21739 } 12-16-88

U.S. EPA - CLP

3
BLANKS

Lab Name: CUM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u							CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21733 }
21734 } ug
21739 } 12-16-88

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: SCALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21734 }
739 } ICP
740 } 12-19-88
757 }

21740 }
757 } Hg
758 } 12-22-88

U S. EPA - CLP

3
BLANKS

Lab Name: CLAM HILL Contract: BEALE AFB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u							CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21771
 774
 775 } Hg
 780 } 12-26-88
 780 }

U.S. EPA - CLP

3
BLANKS

Lab Name: C-424 MILContract: GEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Asenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Cesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

21775 } 1CP
21786 } 12-29-88

FC: F-169 - IN

000030

U.S. EPA - CLP

3
BLANKSLab Name: CHRM HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

21787
788
789
803
804
805
806

1 CP
12-30-88

21784
789
805
806
831

Mg
12-30

FC F-170 - IN

00003

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALELab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum			200	u							P
Antimony			300	u							P
Arsenic			300	u							P
Bismuth			100	u							P
Beryllium			5	u							P
Cadmium			10	u							P
Calcium			1000	u							P
Chromium			30	u							P
Cobalt			40	u							P
Copper			30	u							P
Iron			100	u							P
Lead			200	u							P
Magnesium			1000	u							P
Manganese			15	u							P
Mercury			0.5	u	0.5	u	0.5	u			CV
Nickel			40	u							P
Potassium			1000	u							P
Selenium			400	u							P
Silver			30	u							P
Sodium			1000	u							P
Thallium			500	u							P
Vanadium			40	u							P
Zinc			20	u							P
Cyanide											NR
MOLYBDENUM			40	u							P

21787
788
789
803
804
805
806

ICP
12-30-88

21787
789
805
806
831

Hg
12-30

FOR F-171 . IN

000030

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u	0.5	u	0.5	u			CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21787
789
805 } Hg
804
831 } 12-30

FO: F-172 - IN

7/87
000033

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	u	20	u	20	u			20	u	P
Antimony	30	u	30	u	30	u			30	u	P
Arsenic	30	u	30	u	30	u			30	u	P
Barium	10	u	10	u	10	u			10	u	P
Beryllium	0.5	u	0.5	u	0.5	u			0.5	u	P
Cadmium	1	u	1	u	1	u			1	u	P
Calcium	100	u	100	u	100	u			100	u	P
Chromium	3	u	3	u	3	u			3	u	P
Cobalt	4	u	4	u	4	u			4	u	P
Copper	3	u	3	u	3	u			3	u	P
Iron	10	u	10	u	10	u			10	u	P
Lead	20	u	20	u	20	u			20	u	P
Magnesium	100	u	100	u	100	u			100	u	P
Manganese	1.5	u	1.5	u	1.5	u			1.5	u	P
Mercury											
Nickel	4	u	4	u	4	u			4	u	P
Potassium	200	u	200	u	200	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	3	u	3	u	3	u			3	u	P
Sodium	100	u	100	u	100	u			100	u	P
Thallium	50	u	50	u	50	u			50	u	P
Vanadium	4	u	4	u	4	u			4	u	P
Zinc	2	u	2	u	2	u			2	u	P
Cyanide											
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 01/03/89 Ref # 21806 5-7
 21830
 21831
 21832 2-5

FC F-173 - IN

03803-

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	H
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NK
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21632-6
846 } ICP
847 } 1-5-89
848 }

21830
832 } Hg
846 } 1-4

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

21050
859 } ICP
860 } 1-6
872 }

21047
840 } Hg
858 } 1-11
859 }
860 }

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											P
Antimony											P
Arsenic											P
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											P
Magnesium											P
Manganese											P
Mercury			0.5	u	0.5	u	0.5	u			P
Nickel											P
Potassium											P
Selenium											P
Silver											P
Sodium											P
Thallium											P
Vanadium											P
Zinc											P
Cyanide											NR
Molybdenum											P

21847
846
858
859
860

U.S. EPA - CLP

3
BLANKSLab Name: CUMM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	U	20	U	20	U			20	U	P
Antimony	30	U	30	U	30	U			30	U	P
Arsenic	30	U	30	U	30	U			30	U	P
Bismuth	10	U	10	U	10	U			10	U	P
Beryllium	0.5	U	0.5	U	0.5	U			0.5	U	P
Cadmium	1	U	1	U	1	U			1	U	P
Calcium	100	U	100	U	100	U			100	U	P
Chromium	3	U	3	U	3	U			3	U	P
Cobalt	4	U	4	U	4	U			4	U	P
Copper	3	U	3	U	3	U			3	U	P
Iron	10	U	10	U	10	U			10	U	P
Lead	20	U	20	U	20	U			20	U	P
Magnesium	100	U	100	U	100	U			100	U	P
Manganese	1.5	U	1.5	U	1.5	U			1.5	U	P
Mercury	0.5	U	0.5	U	0.5	U			0.04	U	CV
Nickel	4	U	4	U	4	U			4	U	P
Potassium	200	U	200	U	200	U			200	U	P
Selenium	40	U	40	U	40	U			40	U	P
Silver	3	U	3	U	3	U			3	U	P
Sodium	100	U	100	U	100	U			100	U	P
Thallium	50	U	50	U	50	U			50	U	P
Vanadium	4	U	4	U	4	U			4	U	P
Zinc	2	U	2	U	2	U			2	U	P
Cyanide											NR
Molybdenum	4	U	4	U	4	U			4	U	P

ICP 01/09/89

Ref +

21872

3-12

21879

2-8

21899

2-4

21872 } Hg
21879 }
21899 } 1-17-89

U.S. EPA - CLP

3
BLANKS

Lab Name: CUMM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	f
Antimony	300	u	300	u	300	u			30	u	f
Arsenic	200	u	200	u	200	u			30	u	f
Barium	100	u	100	u	100	u			10	u	f
Beryllium	5	u	5	u	5	u			0.5	u	f
Cadmium	10	u	10	u	10	u			1	u	f
Calcium	1000	u	1000	u	1000	u			100	u	f
Chromium	30	u	30	u	30	u			3	u	f
Cobalt	40	u	40	u	40	u			4	u	f
Copper	30	u	30	u	30	u			3	u	f
Iron	100	u	100	u	100	u			10	u	f
Lead	200	u	200	u	200	u			20	u	f
Magnesium	1000	u	1000	u	1000	u			100	u	f
Manganese	15	u	15	u	15	u			1.5	u	f
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	C
Nickel	40	u	40	u	40	u			4	u	f
Potassium	1000	u	1000	u	1000	u			200	u	f
Selenium	400	u	400	u	400	u			40	u	f
Silver	30	u	30	u	30	u			3	u	f
Sodium	1000	u	1000	u	1000	u			100	u	f
Thallium	500	u	500	u	500	u			50	u	f
Vanadium	40	u	40	u	40	u			4	u	f
Zinc	20	u	20	u	20	u			2	u	f
Cyanide											
Molybdenum	40	u	40	u	40	u			4	u	f

21899 } 10P
119 } 100

21919 }
923 } Hg
931 }
991 } 1-17

U.S. EPA - CLP

3
BLANKS

Lab Name: CUMM HILL Contract: 3EALF AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											P
Antimony											P
enic											P
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											P
Magnesium											P
Manganese											P
Mercury			0.5	u	0.5	u					CV
Nickel											P
Potassium											P
Selenium											P
Silver											P
Sodium											P
Thallium											P
Vanadium											P
Zinc											P
Cyanide											NR
Molybdenum											P

21919 }
 923 } 14g
 931 }
 991 } 1-17

U.S. EPA - CLP

3
BLANKSLab Name: CHAM 414Contract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u			4	u	P

21920
923 } 100
930 } 1-12-89
911 }

U.S. EPA - CLP

3
BLANKS

Lab Name: CUMM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NA
Molybdenum	40	u	40	u	40	u			4	u	P

21920 (2.5) ICP 1-67
979 (2.5)

U.S. EPA - CLP

3
BLANKS

Lab Name: CLM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.05	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Methylmercury	40	u	40	u	40	u			4	u	P

21979 }
21991 } ICP
22002 } 1-25

22002 - Hg
1-24

3
BLANKSLab Name: CLM MILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Preparation Blank		
			1	C	2	C	3	C		C	M
Aluminum	200	U	200	U	200	U			20	U	P
Antimony	300	U	300	U	300	U			30	U	P
Asenic	300	U	300	U	300	U			30	U	P
Barium	100	U	100	U	100	U			10	U	P
Beryllium	5	U	5	U	5	U			0.5	U	P
Cadmium	10	U	10	U	10	U			1	U	P
Calcium	1000	U	1000	U	1000	U			100	U	P
Chromium	30	U	30	U	30	U			3	U	P
Cobalt	40	U	40	U	40	U			4	U	P
Copper	30	U	30	U	30	U			3	U	P
Iron	100	U	100	U	100	U			10	U	P
Lead	200	U	200	U	200	U			20	U	P
Magnesium	1000	U	1000	U	1000	U			100	U	P
Manganese	15	U	15	U	15	U			1.5	U	P
Mercury											
Nickel	40	U	40	U	40	U			4	U	P
Potassium	1000	U	1000	U	1000	U			200	U	P
Selenium	400	U	400	U	400	U			40	U	P
Silver	30	U	30	U	30	U			3	U	P
Sodium	1000	U	1000	U	1000	U			100	U	P
Thallium	500	U	500	U	500	U			50	U	P
Vanadium	40	U	40	U	40	U			4	U	P
Zinc	20	U	20	U	20	U			2	U	P
Unlabeled											NR
Unlabeled	20	U	20	U	20	U			4	U	P

CP
27

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	F
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u			0.06	u	CY
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	40	u	40	u	40	u	40	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u	40	u	4	u	P

22020
053
067
074
080
087
124

22053
067
074
080
134

100
1-3
2-3

U.S. EPA - CLP

3
BLANKSLab Name: CU2M HILLContract: 3EAL AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
enic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	200	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	25	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1144	u	1000	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u			4	u	P

220/24 ICP 2-8

22159 }
176 } 14g 2-8
191 }

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	u	20	u	20	u			20	u	P
Antimony	30	u	30	u	30	u			30	u	P
Arsenic	30	u	30	u	30	u			30	u	
Barium	10	u	10	u	10	u			10	u	
Beryllium	0.5	u	0.5	u	0.5	u			0.5	u	P
Cadmium	1	u	1	u	1	u			1	u	P
Calcium	100	u	100	u	100	u			100	u	P
Chromium	3	u	3	u	3	u			3	u	P
Cobalt	4	u	4	u	4	u			4	u	P
Copper	3	u	3	u	3	u			3	u	P
Iron	10	u	10	u	10	u			10	u	P
Lead	20	u	20	u	20	u			20	u	P
Magnesium	100	u	100	u	100	u			100	u	P
Manganese	1.5	u	1.5	u	1.5	u			1.5	u	P
Mercury											
Nickel	4	u	4	u	4	u			4	u	P
Potassium	200	u	200	u	200	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	3	u	3	u	3	u			3	u	P
Sodium	100	u	100	u	100	u			100	u	P
Thallium	50	u	50	u	50	u			50	u	P
Vanadium	4	u	4	u	4	u			4	u	P
Zinc	2	u	2	u	2	u			2.518		P
Cyanide											NR
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 12/09/88 Ref # 21645
 21659 6-8
 21621 -24
 21676 2-3

U.S. EPA - CLP

3
BLANKSLab Name: C-24 HILLContract: DEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.2	u	0.2	u	0.2	u	0.2	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			.50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2.310	-	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u			4	u	P

1852
 676
 21677 } 1CF
 21716 } 12-13-88
 21717

21689 }
 21697 }
 21717 } Hg 12-12-88
 21725 }

U.S. EPA - CLP

3
BLANKSLab Name: CHARM HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	3.142		P
Cyanide											NR

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: SEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	0	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3.46	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			26.87	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide		u		u		u				u	NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

751 }
 758 } ICP
 771 } 12-21-88
 774 }
 775 }

21771 }
 774 }
 775 } Hg
 776 } 12-28-88
 788 }

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			2.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.06	u	0.06	u	0.06	u	0.06	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 12/06/88

21654

21656

21657

21658

21659

2-5

Hg 12/11/88

21654

21657

U.S. EPA - CLP

3
BLANKS

Lab Name: 742M 4111 Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury	0.06	U	0.06	U	0.06		0.06	U	0.06	U	C
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

Hg 12/06/88 Ref # 21658
 21659 3-8
 21676

U.S. EPA - CLP

3
BLANKSLab Name: CUM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U	200	U	20	U	P
Antimony	300	U	300	U	300	U	300	U	30	U	P
Arsenic	300	U	300	U	300	U	300	U	30	U	P
Barium	100	U	100	U	100	U	100	U	10	U	P
Beryllium	5	U	5	U	5	U	5	U	0.5	U	P
Cadmium	10	U	10	U	10	U	10	U	1	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	100	U	P
Chromium	30	U	30	U	30	U	30	U	3	U	P
Cobalt	40	U	40	U	40	U	40	U	4	U	P
Copper	30	U	30	U	30	U	30	U	3	U	P
Iron	100	U	100	U	100	U	100	U	10	U	P
Lead	200	U	200	U	200	U	200	U	20	U	P
Magnesium	1000	U	1000	U	1000	U	1000	U	100	U	P
Manganese	15	U	15	U	15	U	15	U	1.5	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	U	0.06	U	CV
Nickel	40	U	40	U	40	U	40	U	4	U	P
Potassium	1000	U	1000	U	1000	U	1000	U	200	U	P
Selenium	40	U	40	U	40	U	40	U	40	U	P
Silver	30	U	30	U	30	U	30	U	3	U	P
Sodium	1000	U	1000	U	1000	U	1000	U	100	U	P
Thallium	500	U	500	U	500	U	500	U	50	U	P
Vanadium	40	U	40	U	40	U	40	U	40	U	P
Zinc	20	U	20	U	20	U	20	U	2	U	P
Cyanide		U		U		U		U		U	NR
MOLYBDENUM	40	U	40	U	40	U	40	U	4	U	P

21717 }
 21725 }
 21727 } ICP
 21733 } 12-14-08
 21734 }

21733 }
 21734 }
 21739 } 12-16-08

U.S. EPA - CLP

3
BLANKS

Lab Name: CLM HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u							CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21233 }
 21734 } ug
 21739 } 12-16-88

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21734 }
 739 } ICP
 740 } 12-19-89
 757 }

21740 }
 757 } Hg
 759 } 12-22-89

U.S. EPA - CLP

3
BLANKS

Lab Name: ARM 011 Contract: BEALE ARB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u							CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21771
 724
 725 } Hg
 790 } 12-26-88
 798 }

U.S. EPA - CLP

3
BLANKSLab Name: C-24 - 00Contract: 3EALC AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury											
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

225 } CP
2796 } 12-29-88

U.S. EPA - CLP

3
BLANKSLab Name: CHRM WILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
rium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

21787
788
789
903
804
805
806

1 CP
12-30-88

21789
789
805
806
831

12-30

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum			200	u							P
Antimony			300	u							P
Arsenic			300	u							P
Barium			100	u							P
Beryllium			5	u							P
Cadmium			10	u							P
Calcium			1000	u							P
Chromium			30	u							P
Cobalt			40	u							P
Copper			30	u							P
Iron			100	u							P
Lead			200	u							P
Magnesium			1000	u							P
Manganese			15	u							P
Mercury			0.5	u	0.5	u	0.5	u			CV
Nickel			40	u							P
Potassium			1000	u							P
Selenium			400	u							P
Silver			10	u							P
Sodium			1000	u							P
Thallium			500	u							P
Vanadium			40	u							P
Zinc			20	u							P
Cyanide											NR
MELYODENUM			40	u							P

21787
788
789
803
804
805
806

ICP
12-30-88

21787
789
803
806
831

Hg
12-30

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL Contract: BEALE AFB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.5	u	0.5	u	0.5	u			CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

21 787
 789
 805
 806
 831 } Hg
 12-30

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	U	20	U	20	U			20	U	P
Antimony	30	U	30	U	30	U			30	U	P
Arsenic	30	U	30	U	30	U			30	U	P
Barium	10	U	10	U	10	U			10	U	P
Beryllium	0.5	U	0.5	U	0.5	U			0.5	U	P
Cadmium	1	U	1	U	1	U			1	U	P
Calcium	100	U	100	U	100	U			100	U	P
Chromium	3	U	3	U	3	U			3	U	P
Cobalt	4	U	4	U	4	U			4	U	P
Copper	3	U	3	U	3	U			3	U	P
Iron	10	U	10	U	10	U			10	U	P
Lead	20	U	20	U	20	U			20	U	P
Magnesium	100	U	100	U	100	U			100	U	P
Manganese	1.5	U	1.5	U	1.5	U			1.5	U	P
Mercury											
Nickel	4	U	4	U	4	U			4	U	P
Potassium	200	U	200	U	200	U			200	U	P
Selenium	40	U	40	U	40	U			40	U	P
Silver	3	U	3	U	3	U			3	U	P
Sodium	100	U	100	U	100	U			100	U	P
Thallium	50	U	50	U	50	U			50	U	P
Vanadium	4	U	4	U	4	U			4	U	P
Zinc	2	U	2	U	2	U			2	U	P
Cyanide											
Molybdenum	4	U	4	U	4	U			4	U	P

ICP 01/05/89 Ref # 21806 5-7
 21830
 21831
 21832 2-5

FC F-200 - 231

07203-

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Asenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1000	u	1000	u			200	u	P
Selenium	400	u	400	u	400	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u			4	u	P

21832-6
846
847
848

ICP
1-5-89

21830
832
846

MS
1-4

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Arsenic	300	u	300	u	300	u	300	u	30	u	P
Barium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	400	u	400	u	400	u	400	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
MOLYBDENUM	40	u	40	u	40	u	40	u	4	u	P

21070
857
860
872

1CP
1-6

21047
840
857
860

N₂
1-11

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
		1	C	2	C	3	C			
Aluminum										P
Antimony										P
Asenic										P
Barium										P
Beryllium										P
Cadmium										P
Calcium										P
Chromium										P
Cobalt										P
Copper										P
Iron										P
Lead										P
Magnesium										P
Manganese										P
Mercury		0.5	u	0.5	u	0.5	u			P
Nickel										P
Potassium										P
Selenium										P
Silver										P
Sodium										P
Thallium										P
Vanadium										P
Zinc										P
Cyanide										NR
Molybdenum										P

21045
848
858
859
860

Hg
1-11

0030

FORM F-203 IN

00003

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	20	u	20	u	20	u			20	u	P
Antimony	30	u	30	u	30	u			30	u	P
Arsenic	30	u	30	u	30	u			30	u	P
Barium	10	u	10	u	10	u			10	u	P
Beryllium	0.5	u	0.5	u	0.5	u			0.5	u	P
Cadmium	1	u	1	u	1	u			1	u	P
Calcium	100	u	100	u	100	u			100	u	P
Chromium	3	u	3	u	3	u			3	u	P
Cobalt	4	u	4	u	4	u			4	u	P
Copper	3	u	3	u	3	u			3	u	P
Iron	10	u	10	u	10	u			10	u	P
Lead	20	u	20	u	20	u			20	u	P
Magnesium	100	u	100	u	100	u			100	u	P
Manganese	1.5	u	1.5	u	1.5	u			1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u			0.04	u	CV
Nickel	4	u	4	u	4	u			4	u	P
Potassium	200	u	200	u	200	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	3	u	3	u	3	u			3	u	P
Sodium	100	u	100	u	100	u			100	u	P
Thallium	50	u	50	u	50	u			50	u	P
Vanadium	4	u	4	u	4	u			4	u	P
Zinc	2	u	2	u	2	u			2	u	P
Cyanide											NR
Molybdenum	4	u	4	u	4	u			4	u	P

ICP 01/09/89

Ref #

21872

3-12

21879

2-8

21899

2-4

21872 } Hg
21879 }
21899 } 1-17-89

FOR F-204 IN

070036

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	::
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	F
Antimony	300	u	300	u	300	u			30	u	F
Arsenic	200	u	200	u	200	u			30	u	F
ium	100	u	100	u	100	u			10	u	F
Beryllium	5	u	5	u	5	u			0.5	u	F
Cadmium	10	u	10	u	10	u			1	u	F
Calcium	1000	u	1000	u	1000	u			100	u	F
Chromium	30	u	30	u	30	u			3	u	F
Cobalt	40	u	40	u	40	u			4	u	F
Copper	30	u	30	u	30	u			3	u	F
Iron	100	u	100	u	100	u			10	u	F
Lead	200	u	200	u	200	u			20	u	F
Magnesium	1000	u	1000	u	1000	u			100	u	F
Manganese	15	u	15	u	15	u			1.5	u	F
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.06	u	Ci
Nickel	40	u	40	u	40	u			4	u	F
Potassium	1000	u	1000	u	1000	u			200	u	F
Selenium	400	u	400	u	400	u			40	u	F
Silver	30	u	30	u	30	u			3	u	F
Sodium	1000	u	1000	u	1000	u			100	u	F
Thallium	500	u	500	u	500	u			50	u	F
Vanadium	40	u	40	u	40	u			4	u	F
Zinc	20	u	20	u	20	u			2	u	F
Cyanide											Ni
Molybdenum	40	u	40	u	40	u			4	u	F

21899 } 10P
119 } 100
21919 }
923 }
931 }
991 } 1-17

U.S. EPA - CLP

3
BLANKSLab Name: CLAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											P
Antimony											P
Arsenic											P
Barium											P
Beryllium											P
Cadmium											P
Calcium											P
Chromium											P
Cobalt											P
Copper											P
Iron											P
Lead											P
Magnesium											P
Manganese											P
Mercury			0.5	u	0.5	u					CV
Nickel											P
Potassium											P
Selenium											P
Silver											P
Sodium											P
Thallium											P
Vanadium											P
Zinc											P
Cyanide											NR
Molybdenum											P

21919
923
931
991

14
1-17

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			20	U	P
Antimony	300	U	300	U	300	U			30	U	P
Arsenic	300	U	300	U	300	U			30	U	P
Bismuth	100	U	100	U	100	U			10	U	P
Beryllium	5	U	5	U	5	U			0.5	U	P
Cadmium	10	U	10	U	10	U			1	U	P
Calcium	1000	U	1000	U	1000	U			100	U	P
Chromium	30	U	30	U	30	U			3	U	P
Cobalt	40	U	40	U	40	U			4	U	P
Copper	30	U	30	U	30	U			3	U	P
Iron	100	U	100	U	100	U			10	U	P
Lead	200	U	200	U	200	U			20	U	P
Magnesium	1000	U	1000	U	1000	U			100	U	P
Manganese	15	U	15	U	15	U			1.5	U	P
Mercury											
Nickel	40	U	40	U	40	U			4	U	P
Potassium	1000	U	1000	U	1000	U			200	U	P
Selenium	400	U	400	U	400	U			40	U	P
Silver	30	U	30	U	30	U			3	U	P
Sodium	1000	U	1000	U	1000	U			100	U	P
Thallium	500	U	500	U	500	U			50	U	P
Vanadium	40	U	40	U	40	U			4	U	P
Zinc	20	U	20	U	20	U			2	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			4	U	P

21920 }
 923 } 100
 930 } 1-17-89
 931 }

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	p
Antimony	300	u	300	u	300	u			30	u	p
Arsenic	300	u	300	u	300	u			30	u	p
Barium	100	u	100	u	100	u			10	u	p
Beryllium	5	u	5	u	5	u			0.5	u	p
Cadmium	10	u	10	u	10	u			1	u	p
Calcium	1000	u	1000	u	1000	u			100	u	p
Chromium	30	u	30	u	30	u			3	u	p
Cobalt	40	u	40	u	40	u			4	u	p
Copper	30	u	30	u	30	u			3	u	p
Iron	100	u	100	u	100	u			10	u	p
Lead	200	u	200	u	200	u			20	u	p
Magnesium	1000	u	1000	u	1000	u			100	u	p
Manganese	15	u	15	u	15	u			1.5	u	p
Mercury											
Nickel	40	u	40	u	40	u			4	u	p
Potassium	1000	u	1000	u	1000	u			200	u	p
Selenium	400	u	400	u	400	u			40	u	p
Silver	30	u	30	u	30	u			3	u	p
Sodium	1000	u	1000	u	1000	u			100	u	p
Thallium	500	u	500	u	500	u			50	u	p
Vanadium	40	u	40	u	40	u			4	u	p
Zinc	20	u	20	u	20	u			2	u	p
Cyanide											NR
Molybdenum	40	u	40	u	40	u			4	u	p

21920 (2-5) 1CP 1-23

979 (2-5)

U.S. EPA - CLP

3
BLANKSLab Name: CUM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)					Prepa- ration Blank	C	M
			1	2	3	4				
Aluminum	200	U	200	U	200	U		20	U	P
Antimony	300	U	300	U	300	U		30	U	P
Arsenic	300	U	300	U	300	U		30	U	P
Barium	100	U	100	U	100	U		10	U	P
Beryllium	5	U	5	U	5	U		0.5	U	P
Cadmium	10	U	10	U	10	U		1	U	P
Calcium	1000	U	1000	U	1000	U		100	U	P
Chromium	30	U	30	U	30	U		3	U	P
Cobalt	40	U	40	U	40	U		4	U	P
Copper	30	U	30	U	30	U		3	U	P
Iron	100	U	100	U	100	U		10	U	P
Lead	200	U	200	U	200	U		20	U	P
Magnesium	1000	U	1000	U	1000	U		100	U	P
Manganese	15	U	15	U	15	U		1.5	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	0.06	U	CV
Nickel	40	U	40	U	40	U		4	U	P
Potassium	1000	U	1000	U	1000	U		200	U	P
Selenium	400	U	400	U	400	U		40	U	P
Silver	30	U	30	U	30	U		3	U	P
Sodium	1000	U	1000	U	1000	U		100	U	P
Thallium	500	U	500	U	500	U		50	U	P
Vanadium	40	U	40	U	40	U		4	U	P
Zinc	20	U	20	U	20	U		2	U	P
Cyanide										NR
Molybdenum	40	U	40	U	40	U		4	U	P

21989 } ICP
21991 }
22002 } 1-25

22002 - Hg
1-24

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	p
Antimony	300	u	300	u	300	u			30	u	p
Arsenic	300	u	300	u	300	u			30	u	p
Barium	100	u	100	u	100	u			10	u	p
Beryllium	5	u	5	u	5	u			0.5	u	p
Cadmium	10	u	10	u	10	u			1	u	p
Calcium	1000	u	1000	u	1000	u			100	u	p
Chromium	30	u	30	u	30	u			3	u	p
Cobalt	40	u	40	u	40	u			4	u	p
Copper	30	u	30	u	30	u			3	u	p
Iron	100	u	100	u	100	u			10	u	p
Lead	200	u	200	u	200	u			20	u	p
Magnesium	1000	u	1000	u	1000	u			100	u	p
Manganese	15	u	15	u	15	u			1.5	u	p
Mercury											
Nickel	40	u	40	u	40	u			4	u	p
Potassium	1000	u	1000	u	1000	u			200	u	p
Selenium	400	u	400	u	400	u			40	u	p
Silver	30	u	30	u	30	u			3	u	p
Sodium	1000	u	1000	u	1000	u			100	u	p
Thallium	500	u	500	u	500	u			50	u	p
Vanadium	40	u	40	u	40	u			4	u	p
Zinc	20	u	20	u	20	u			2	u	p
Cyanide											NR
Molybdenum	20	u	20	u	20	u			4	u	p

 22002 } ICP
 22020 } 1-27

F-210

I - IN

00000

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u	200	u	20	u	P
Antimony	300	u	300	u	300	u	300	u	30	u	P
Asenic	300	u	300	u	300	u	300	u	30	u	P
ium	100	u	100	u	100	u	100	u	10	u	P
Beryllium	5	u	5	u	5	u	5	u	0.5	u	P
Cadmium	10	u	10	u	10	u	10	u	1	u	P
Calcium	1000	u	1000	u	1000	u	1000	u	100	u	P
Chromium	30	u	30	u	30	u	30	u	3	u	P
Cobalt	40	u	40	u	40	u	40	u	4	u	P
Copper	30	u	30	u	30	u	30	u	3	u	P
Iron	100	u	100	u	100	u	100	u	10	u	P
Lead	200	u	200	u	200	u	200	u	20	u	P
Magnesium	1000	u	1000	u	1000	u	1000	u	100	u	P
Manganese	15	u	15	u	15	u	15	u	1.5	u	P
Mercury	0.5	u	0.5	u	0.5	u		u	0.06	u	CV
Nickel	40	u	40	u	40	u	40	u	4	u	P
Potassium	1000	u	1000	u	1000	u	1000	u	200	u	P
Selenium	40	u	40	u	40	u	40	u	40	u	P
Silver	30	u	30	u	30	u	30	u	3	u	P
Sodium	1000	u	1000	u	1000	u	1000	u	100	u	P
Thallium	500	u	500	u	500	u	500	u	50	u	P
Vanadium	40	u	40	u	40	u	40	u	4	u	P
Zinc	20	u	20	u	20	u	20	u	2	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u	40	u	4	u	P

22020
053
067
79
100
087
127

22053
067
039
080
134

14g
2-3

F-211

C - IN

070000

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): SOILPreparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			20	u	P
Antimony	300	u	300	u	300	u			30	u	P
Arsenic	300	u	300	u	300	u			30	u	P
Barium	100	u	100	u	100	u			10	u	P
Beryllium	5	u	5	u	5	u			0.5	u	P
Cadmium	10	u	10	u	10	u			1	u	P
Calcium	1000	u	1000	u	1000	u			100	u	P
Chromium	30	u	30	u	30	u			3	u	P
Cobalt	40	u	40	u	40	u			4	u	P
Copper	30	u	30	u	30	u			3	u	P
Iron	100	u	100	u	100	u			10	u	P
Lead	200	u	200	u	200	u			20	u	P
Magnesium	1000	u	1000	u	1000	u			100	u	P
Manganese	15	u	15	u	15	u			1.5	u	P
Mercury	.05	u	.05	u	.05	u	.25	u	0.05	u	CV
Nickel	40	u	40	u	40	u			4	u	P
Potassium	1000	u	1144	u	1000	u			200	u	P
Selenium	40	u	40	u	40	u			40	u	P
Silver	30	u	30	u	30	u			3	u	P
Sodium	1000	u	1000	u	1000	u			100	u	P
Thallium	500	u	500	u	500	u			50	u	P
Vanadium	40	u	40	u	40	u			4	u	P
Zinc	20	u	20	u	20	u			2	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u			4	u	P

220124 10P 2-8

22159 }
176 } 14 2-8
191 }

F-212

1 - IN

070303

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
MOLYBDENUM	40	U	40	U	40	U			40	U	P

ICP 2-27-69 22333

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											
Barium											
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

Pb CFAA 2-20-09
22333-1

U.S. EPA - CLP

3
BLANKS

ab Name: CHAM HILL

Contract: BEALE AFB

ab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

reparation Blank Matrix (soil/water): WATER

reparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U					200	U	P
Antimony	300	U	300	U					300	U	P
Asenic	300	U	300	U					300	U	P
Barium	100	U	100	U					100	U	P
Beryllium	5	U	5	U					5	U	P
Cadmium	10	U	10	U					10	U	P
Calcium	1000	U	1000	U					1000	U	P
Chromium	30	U	30	U					30	U	P
Cobalt	40	U	40	U					40	U	P
Copper	30	U	30	U					30	U	P
Iron	100	U	100	U					100	U	P
Lead	200	U	200	U					200	U	P
Magnesium	1000	U	1000	U					1000	U	P
Manganese	15	U	15	U					15	U	P
Mercury											NR
Nickel	40	U	40	U					40	U	P
Potassium	1000	U	1000	U					1000	U	P
Selenium	400	U	400	U					400	U	P
Silver	30	U	30	U					30	U	P
Sodium	1000	U	1000	U					1000	U	P
Thallium	500	U	500	U					500	U	P
Vanadium	40	U	40	U					40	U	P
Zinc	20	U	20	U					20	U	P
Cyanide											NR
MOLYBDENUM	40	U	40	U					40	U	P

ICP 3-2-89 22345-2
22345-2,3
22383-1,2

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: SEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u	5	u	5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybdenum											NR

Pb-6F
22349-2
22349-23
22383-1,2
22398-1,2
22405-1

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	P
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide		U		U		U				U	P
MOLYBDENUM	40	U	40	U	40	U			40	U	P

ICP 3-14-89 22382-1,3
22505-1

Hg-CV - 3-1-89

22502-3
22503-1,2
22508-1,2,3
22405-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic	5	u	5	u	5	u	5	u	5	u	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u			5	u	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

Pb - GFAA 3-13-91

22302-1,3
22398-1,2,3

As - GFAA 3-15-91

22302
22303
22398
22405
22445
22455
22455

Sb - GFAA 3-16-91

22302
22303
22398
22405
22445
22455

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Asenic			5	u							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

A3-GRAA-3-15-83 22302
22303
22304
22405
22406
22407
22408
22409

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 3-3-89
 22398-1,2,3
 22405-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Asenic	5	u	5	u	5	u	5	u	5	u	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury	0.5	u	0.5	u	0.5	u			0.5	u	CV
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u	5	u			F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											

Hg - 44 3-8-89
22445-1
22455-1

AS-GP-3-23-89
22512-1
22505-1

Se-GP-3-24-89
22512-1
22505-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			5	u							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

SA - GFAA-3-M-91
22512
22505

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U	0.5	U			0.5	U	CV
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 3-8-89

22421
22428
22445
22465

Hg - CV 3-16-89

22448
22505
22512

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

Pb-GF-3-16-89

22421
22422
22425

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

PB-GFAB-3-18-09

22455-1

22429-2

224505-1

22512-1

7/87

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U					200	U	P
Antimony	300	U	300	U					300	U	P
Arsenic	300	U	300	U					300	U	P
Barium	100	U	100	U					100	U	P
Beryllium	5	U	5	U					5	U	P
Cadmium	10	U	10	U					10	U	P
Calcium	1000	U	1000	U					1000	U	P
Chromium	30	U	30	U					30	U	P
Cobalt	40	U	40	U					40	U	P
Copper	30	U	30	U					30	U	P
Iron	100	U	100	U					100	U	P
Lead	200	U	200	U					200	U	P
Magnesium	1000	U	1000	U					1000	U	P
Manganese	15	U	15	U					15	U	P
Mercury	0.5	U	0.5	U	0.5	U			0.5	U	CV
Nickel	40	U	40	U					40	U	P
Potassium	1000	U	1000	U					1000	U	P
Selenium	400	U	400	U					400	U	P
Silver	30	U	30	U					30	U	P
Sodium	1000	U	1000	U					1000	U	P
Thallium	500	U	500	U					500	U	P
Vanadium	40	U	40	U					40	U	P
Zinc	20	U	20	U					20	U	P
Cyanide											NR
Molybdenum	40	U	40	U					40	U	P

ICP 3-10-89

22512
22542
22601
22622

Hg-Cd-3-29-89

22601
22622
22643
22644
22693

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Asenic	5	U	5	U	5	U			5	U	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	U	5	U	5	U	5	U	5	U	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	U	5	U	5	U			5	U	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

Pb GP 3-30-89

22645
22646
22601
22622
22683
22838
22739
22760

As GP 3-30-89

22643
22644
22601
22601
22622
22603

Se GP 3-29-89

22643
22601
22622
22644
22603

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

PB-GMAA-3-20-87

 22643
 22642
 22601
 22622
 22603
 22738
 22737
 22760

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NB
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NK
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 3-23-97

22643-1,2,3

22644-1

22659-1

22660-1

22683-1

7/87

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U					200	U	P
Antimony	300	U	300	U					300	U	P
Arsenic	300	U	300	U					300	U	P
Barium	100	U	100	U					100	U	P
Beryllium	5	U	5	U					5	U	P
Cadmium	10	U	10	U					10	U	P
Calcium	1000	U	1000	U					1000	U	P
Chromium	30	U	30	U					30	U	P
Cobalt	40	U	40	U					40	U	P
Copper	30	U	30	U					30	U	P
Iron	100	U	100	U					100	U	P
Lead	200	U	200	U					200	U	P
Magnesium	1000	U	1000	U					1000	U	P
Manganese	15	U	15	U					15	U	P
Mercury											NR
Nickel	40	U	40	U					40	U	P
Potassium	1000	U	1000	U					1000	U	P
Selenium	400	U	400	U					400	U	P
Silver	30	U	30	U					30	U	P
Sodium	1000	U	1000	U					1000	U	P
Thallium	500	U	500	U					500	U	P
Vanadium	40	U	40	U					40	U	P
Zinc	20	U	20	U					20	U	P
Cyanide											NR
MOLYBDENUM	40	U	40	U					40	U	P

ICP 3-30-89
22674-1

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	5700	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP - 5-31-89

22730-1,2,3,4

22737-1,3,4

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	5	U	5	U	5	U	5	U	5	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead											NR
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U					0.5	U	CV
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	5	U	5	U	5	U			5	U	F
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 4-3-89
22740-1

AS GMA 4-8-89
22819-1,3,4,5
22741-1
22742-1
22742-1,4,5
22814-1

Se. GMA 4-3-89

Hg 4-3-89
22741-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic			5	u							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

AS GMAA 4-10-89
22814-1,3,5
22801-1
22800-1
22812-1,3
22819-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	
Barium	100	U	100	U	100	U			100	U	
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	CY
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium											NR
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 4-7-89
22761-1
22762-1, 2, 3

Hg 4-6-89
22792-1, 2, 3

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL Contract: BEALE AFB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Bismuth											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybdenum											NR

PB-GP 45-89
22792-1,2,3

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											
Beryllium											
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury	0.5	u	0.5	u	0.5	u			0.5	u	CV
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

Pb-GP-4-10-89
22961-1
22917-1

Hg 4-11-89
22914-1
22917-1,3-6

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1191	B			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 4-12-89
22814-i
22817-1,3-5

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL Contract: BEALE AFB
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	CV
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 4-18-89

22848-1
22849-1

Hg 4-20
22848-1
22849-1
22870-1
22871-1-3
22890-1
22891-1,2

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Asenic	5	u	5	u	5	u	5	u	5	u	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u			5	u	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

AS - GF 4-19-89
22848-1
22849-1
22870-1
22871-1,2,3
22890-1
22891-1,2
22906-3,5,6

Pb - GF 4-14-89
22848-1
22849-1
22817-1,3,4,5

AS GF 4-17-89
22848-1
22849-1

U.S. EPA - CLP

3
BLANKSLab Name: CHAM HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 4-20-89

 22830-1
 22831-1,2,3
 22890-1
 22891-1,2
 22906-1,3-6

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic	5	u	5	u					5	u	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u	5	u	5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u			5	u	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

Pb-GP 4-18-89

22870-1
22871-1-3
22890-1
22891-1
22906-1,3-6
22914-1
2295-1

Se-GP 4-20-89

22870-1
22871-1-3
22890-1
22891-1
22906-3,5,6

As-GP 4-21-89

22871-3

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						C	Prepa- ration Blank	C	M
			1	C	2	C	3	C				
Aluminum												NR
Antimony												NR
Arsenic												
Barium												
Beryllium												NR
Cadmium												NR
Calcium												NR
Chromium												NR
Cobalt												NR
Copper												NR
Iron												NR
Lead			5	14								F
Magnesium												NR
Manganese												NR
Mercury												NR
Nickel												NR
Potassium												NR
Selenium												NR
Silver												NR
Sodium												NR
Thallium												NR
Vanadium												NR
Zinc												NR
Cyanide												NR
MOLYBDENUM												NR

PB-GP 9-18-89

22870
22871
22872
22873
22874
22875
22876
22877
22878
22879
22880
22881
22882
22883
22884
22885
22886
22887
22888
22889
22890
22891
22892
22893
22894
22895
22896
22897
22898
22899
22900
22901
22902
22903
22904
22905
22906
22907
22908
22909
22910
22911
22912
22913
22914
22915

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Bismuth	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

TCP 4-21-89

22914-1

22915-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL

Contract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U					200	U	P
Antimony	300	U	300	U					300	U	
Arsenic	300	U	300	U					300	U	
Barium	100	U	100	U					100	U	P
Beryllium	5	U	5	U					5	U	P
Cadmium	10	U	10	U					10	U	P
Calcium	1000	U	1000	U					1000	U	P
Chromium	30	U	30	U					30	U	P
Cobalt	40	U	40	U					40	U	P
Copper	30	U	30	U					30	U	P
Iron	100	U	100	U					100	U	P
Lead	200	U	200	U					200	U	P
Magnesium	1000	U	1000	U					1000	U	P
Manganese	15	U	15	U					15	U	P
Mercury	0.5	U	0.5	U	0.5	U			0.5	U	CV
Nickel	40	U	40	U					40	U	P
Potassium	1000	U	1000	U					1000	U	P
Selenium	400	U	400	U					400	U	P
Silver	30	U	30	U					30	U	P
Sodium	1000	U	1000	U					1000	U	P
Thallium	500	U	500	U					500	U	P
Vanadium	40	U	40	U					40	U	P
Zinc	20	U	20	U					20	U	P
Cyanide											NR
MOLYBDENUM	40	U	40	U					40	U	P

ICP 6-7-89

23306-1
23306-1/2
23306-1/4

Hg 6-5-89

23306-1

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code: Case No.: SAS No.: SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic	5	u	5	u	5	u			5	u	NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u			5	u	NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybdenum											NR

As GF 6-6-91
23306-1
23324-1,2
23325-1-4

Pb GF 6-7-91
- SAME

Se GF 6-6-91
- SAME

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank		M
			1	C	2	C	3	C	C		
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	CV
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 6-9-89

23353-1
23358-1,2
23342-1-4Hg 6-13-89
23324-1,2
23355-1-4
23358-1,2
23345-1-5
23373-1-3,5
23399-2

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: SEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.5	U							NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybdenum											NR

Hg 6-13-89
23324-1.2
23325-1.2
23350-1.2
23345-1.2
23377-1.3.5
23378-2

U.S. EPA - CLP

3
BLANKS

Lab Name: CHAM HILL Contract: BEALE AFB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic	5	u	5	u	5	u			5	u	
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u			5	u	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

As GP 6-8-87
23350-12
23355-105

Pb GP 6-8-87
23358-12
23352-104
23355-105

Se GP 6-8-87
a same

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U			40	U	P

ICP 6-14-91
23375-1-5
23375-1,2,3,5
23375-2

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL Contract: BEALE AFB
 Lab Code: Case No.: SAS No.: SDG No.:
 Preparation Blank Matrix (soil/water): WATER
 Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NO
Antimony											
Arsenic	5	U	5	U	5	U			5	U	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	U	5	U	5	U	5	U	5	U	F
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium	5	U	5	U	5	U	5	U	5	U	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

AS GP 6-26-89
 23393-1-1,5
 23398-2
 23412-1
 23418-1-3

Pb GP 6-26-89
 23353-1
 397-1,2,5
 398-A
 413-1
 410-1-3
 442-2

Se GP 6-26-89
 23391-1,2,3,5
 398-2
 410-1-3
 442-2
 443-2,3
 454-1,2,3,5
 468-1
 469-1

F-250

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Preparation Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	u	200	u	200	u			200	u	P
Antimony	300	u	300	u	300	u			300	u	P
senic	300	u	300	u	300	u			300	u	P
Barium	100	u	100	u	100	u			100	u	P
Beryllium	5	u	5	u	5	u			5	u	P
Cadmium	10	u	10	u	10	u			10	u	P
Calcium	1000	u	1000	u	1000	u			1000	u	P
Chromium	30	u	30	u	30	u			30	u	P
Cobalt	40	u	40	u	40	u			40	u	P
Copper	30	u	30	u	30	u			30	u	P
Iron	100	u	100	u	100	u			100	u	P
Lead	200	u	200	u	200	u			200	u	P
Magnesium	1000	u	1000	u	1000	u			1000	u	P
Manganese	15	u	15	u	15	u			15	u	P
Mercury	0.5	u	0.5	u	0.5	u	0.5	u	0.5	u	CV
Nickel	40	u	40	u	40	u			40	u	P
Potassium	1000	u	1000	u	1000	u			1000	u	P
Selenium	400	u	400	u	400	u			400	u	P
Silver	30	u	30	u	30	u			30	u	P
Sodium	1000	u	1000	u	1000	u			1000	u	P
Thallium	500	u	500	u	500	u			500	u	P
Vanadium	40	u	40	u	40	u			40	u	P
Zinc	20	u	20	u	20	u			20	u	P
Cyanide											NR
Molybdenum	40	u	40	u	40	u			40	u	P

Hg 6-14-87

23418-1-3

ICP 6-20-87

23417-1

23418-1-3

23418-2

23418-3

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____

Case No.: _____

SAS No.: _____

SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											
Arsenic	5	u	5	u	5	u			5	u	
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											

AS G F 6-23-89

23454-1,2,3,4

442-2

443-2,3

468-1

469-1

470-1

473-1

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFBLab Code: Case No.: SAS No.: SDG No.: Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U	200	U	200	U	P
Antimony	300	U	300	U	300	U	300	U	300	U	P
Arsenic	300	U	300	U	300	U	300	U	300	U	P
Barium	100	U	100	U	100	U	100	U	100	U	P
Beryllium	5	U	5	U	5	U	5	U	5	U	P
Cadmium	10	U	10	U	10	U	10	U	10	U	P
Calcium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Chromium	30	U	30	U	30	U	30	U	30	U	P
Cobalt	40	U	40	U	40	U	40	U	40	U	P
Copper	30	U	30	U	30	U	30	U	30	U	P
Iron	100	U	100	U	100	U	100	U	100	U	P
Lead	200	U	200	U	200	U	200	U	200	U	P
Magnesium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Manganese	15	U	15	U	15	U	15	U	15	U	P
Mercury	0.5	U	0.5	U	0.5	U			0.5	U	CV
Nickel	40	U	40	U	40	U	40	U	40	U	P
Potassium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Selenium	400	U	400	U	400	U	400	U	400	U	P
Silver	30	U	30	U	30	U	30	U	30	U	P
Sodium	1000	U	1000	U	1000	U	1000	U	1000	U	P
Thallium	500	U	500	U	500	U	500	U	500	U	P
Vanadium	40	U	40	U	40	U	40	U	40	U	P
Zinc	20	U	20	U	20	U	20	U	20	U	P
Cyanide											NR
Molybdenum	40	U	40	U	40	U	40	U	40	U	P

ICP 6-22-87
23454-1,2,3,5
468-1
469-1
470-1
483-1
485-1-3
486-1

6-23-87
23442-2
483-2,3
454-1,2,3,5
468-1
470-1
483-1
485-1-3
486-1

F-253

7/87

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2 HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic	5	u	5	u	5	u	5	u	5	u	F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead	5	u	5	u	5	u			5	u	F
Magnesium											NR
Manganese											NR
Mercury	0.5	u	0.5	F					0.5	u	CV
Nickel											NR
Potassium											NR
Selenium	5	u	5	u	5	u	5	u	5	u	F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
Molybdenum											NR

Pb-GP 7-9-89
23483-1
405-1-3
106-1
520-1-3
501-1
521-1-4

Se-GP 7-6-89
← same

Hg 7-7-89
23580-1-3
23501-1

F-254

U.S. EPA - CLP

3
BLANKS

Lab Name: CH2M HILL

Contract: BEALE AFB

Lab Code:

Case No.:

SAS No.:

SDG No.:

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			5	U							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR
MOLYBDENUM											NR

See GF 7-6-87
22493-1
185-1-73
186-1
500-1-73
501-1
521-1-74

U.S. EPA - CLP

3
BLANKSLab Name: CH2M HILLContract: BEALE AFB

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Preparation Blank Matrix (soil/water): WATERPreparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200	U	200	U	200	U			200	U	P
Antimony	300	U	300	U	300	U			300	U	P
Arsenic	300	U	300	U	300	U			300	U	P
Barium	100	U	100	U	100	U			100	U	P
Beryllium	5	U	5	U	5	U			5	U	P
Cadmium	10	U	10	U	10	U			10	U	P
Calcium	1000	U	1000	U	1000	U			1000	U	P
Chromium	30	U	30	U	30	U			30	U	P
Cobalt	40	U	40	U	40	U			40	U	P
Copper	30	U	30	U	30	U			30	U	P
Iron	100	U	100	U	100	U			100	U	P
Lead	200	U	200	U	200	U			200	U	P
Magnesium	1000	U	1000	U	1000	U			1000	U	P
Manganese	15	U	15	U	15	U			15	U	P
Mercury											NR
Nickel	40	U	40	U	40	U			40	U	P
Potassium	1000	U	1000	U	1000	U			1000	U	P
Selenium	400	U	400	U	400	U			400	U	P
Silver	30	U	30	U	30	U			30	U	P
Sodium	1000	U	1000	U	1000	U			1000	U	P
Thallium	500	U	500	U	500	U			500	U	P
Vanadium	40	U	40	U	40	U			40	U	P
Zinc	20	U	20	U	20	U			20	U	P
Cyanide											NR
MOLYBDENUM	40	U	40	U	40	U			40	U	P

ICP

 6-27-89
 23406-1
 510-1-23
 501-1
 521-1-24

Aug. 30, 1989

Page 2

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

WC DIG MET
jim ben lawry

DUE DATE:08-28-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24158

PAGE OF

DATE:

CH2M HILL/SAC
SAC 24359.RI.04

ATTENTION:WAYNE FEARCE
SAMPLE DESCRIPTION:WATER
DATE OF SAMPLE:08-25-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED:08-28-89

Test Methods: ICP metals (5010) DISSOLVED
Units: ug/l

	method blank	1.603	2.604	3.605		DETECT LIMIT	DATE ANALYZED
Aluminum	<200				ug/l	200	9/20/89
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	6680	18900	29100		1000	
Chromium	<30					30.0	
Cobalt	<5					40.0	
Copper	<30					30.0	
Iron	<100					100	
Lead	<200					200	
Magnesium	<1000	2500	10200	10700		1000	
Manganese	<15					15.0	
Molybdenum	<40					40.0	
Nickel	<40					40.0	
Potassium	<1000			1400		1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	36400	11200	54100		1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

F-257

ICP complete 9/22/89 m.

Aug. 30, 1989

Page 1

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

DIG MET WC
jim ben lawry

DUE DATE: 08-30-89

REPORT TO: BEALE AIR FORCE BASE

REFERENCE NUMBER: S 24185

CH2M HILL/SAC
SAC 24359.RI.04

PAGE OF
DATE:

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: SITE 6 AND 15
DATE OF SAMPLE: 08-28-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 08-30-89

Test Methods:
Units: ug/l

ICF metals (6010)
method 1.0606
blank

DISSOLVED
method 2.0607

method 3.0608

method 4.0609

DETECT DATE
LIMIT ANALYZED

	method 1.0606	method 2.0607	method 3.0608	method 4.0609	DETECT LIMIT	DATE ANALYZED
Aluminum	<200				200	9/20/89
Antimony	<300				300	
Arsenic	<300				300	
Barium	<100				100	
Beryllium	<10				5.0	
Cadmium	<10				10.0	
Calcium	<2000	44600	11600	22900	17200	
Chromium	<40				30.0	
Cobalt	<40				40.0	
Copper	<40				30.0	
Iron	<200				100	
Lead	<200				200	
Magnesium	<1000	22000	6760	16000	5530	
Manganese	<15	76	31	26	<15	
Molybdenum	<40				40.0	
Nickel	<40				40.0	
Potassium	<1000			1800	<1000	
Selenium	<400				400	
Silver	<30				30.0	
Sodium	<1000	21400	16500	30200	41900	
Thallium	<500				500	
Vanadium	<40				40.0	
Zinc	<20				20.0	

COMMENTS:

copy to: DIG MET WC

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Aug. 31, 1989

Page 1

WC DIG MET
jim ben lawry

DUE DATE:08-31-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24191

PAGE OF

DATE:

CH2M HILL/SAC
SAC 24359.RI.04

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER
DATE OF SAMPLE:08-30-89

PHONE;
SAMPLED BY: WAYNE PEARCE
DATE RECEIVED:08-31-89

Test Methods: ICP metals (6010) DISSOLVED
Units: ug/l

	method	1.0614	2.0615	3.0616		DETECT	DATE
	blank	/	/	/	/	LIMIT	ANALYZED
Aluminum	<200				6010	200	9/22/89 ug/
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	15800	15200	20300		1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100					100	
Lead	<200					200	
Magnesium	<1000	5100	5300	9860		1000	
Manganese	<15			16		15.0	
Molybdenum	<40				9/20/89	40.0	
Nickel	<40			45		40.0	
Potassium	<1000	2000	1600	1100		1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	37400	25900	51700		1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

F-259

Sep. 1, 1989

Page 1

WC DIG MET
jim ben lawry

DUE DATE;09-01-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER;S 24202

CH2M HILL/SAC
SAC 24359.RI.04

PAGE OF
DATE;

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER
DATE OF SAMPLE;08-31-89

PHONE;
SAMPLED BY: CORLEY
DATE RECEIVED;09-01-89

Test Methods: ICF metals (6010) DISSOLVED
Units: ug/l

	method blank	1.0617	2.0617	3.0617	4.0617	DETECT LIMIT	DATE ANALYZED
Aluminum	<200		<200		<200	200 ug/l	9/20/89 GC
Antimony	<300		<300		<300	300	
Arsenic	<300		<300		<300	300	
Barium	<100		<100		<100	100	
Beryllium	<5		<5		<5	5.0	
Cadmium	<10		<10		<10	10.0	
Calcium	<1000		20200		<1000	1000	
Chromium	<30		<30		<30	30.0	
Cobalt	<40		<40		<40	40.0	
Copper	<30		<30		<30	30.0	
Iron	<100		<100		<100	100	
Lead	<200		<200		<200	200	
Magnesium	<1000		9480		<1000	1000	
Manganese	<15		24		<15	15.0	
Molybdenum	<40		<40		<40	40.0	
Nickel	<40		<40		<40	40.0	
Potassium	<1000		1400		<1000	1000	
Selenium	<400		<400		<400	400	
Silver	<30		<30		<30	30.0	
Sodium	<1000		62700		<1000	1000	
Thallium	<400		<400		<400	500	
Vanadium	<40		<40		<40	40.0	
Zinc	<20		<20		<20	20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, CA 96001

Sep. 8, 1989

Page 2

WC DIG MET
316 Gen. Labry

DUE DATE: 09-08-89

REPORT TO: REALE AIR FORCE BASE

REFERENCE NUMBER: S 24246

PAGE 3 OF

DATE:

CH2M HILL/SAC
SAC 24359.FI.04

ATTENTION: JUANITA PEARCE

PHONE:

SAMPLE DESCRIPTION: WATER SITE 4.1P

SAMPLED BY: COFLEY

DATE OF SAMPLE: 09-17-89

DATE RECEIVED: 09-08-89

Test Methods: ICP Metals (6010) DISSOLVED
Units: ug/l

	method	1.#0422	2.#0629	3.#0630	DETECT LIMIT	DATE ANALYZED
	blank					
Aluminum	<200				6010	9/22/89
Antimony	<3.00				300	
Arsenic	<300				300	
Boron	<100				100	
Barium	<5				5.0	
Bismuth	<10				10.0	
Calcium	<1000	10200	22300	16400	1000	
Chromium	<30				30.0	
Cobalt	<40				40.0	
Copper	<30				30.0	
Iron	<100				100	
Lead	<200				200	
Manganese	<1000	5360	14100	10300	1000	
Mercury	<15				15.0	
Molybdenum	<40				40.0	
Nickel	<40				40.0	
Potassium	<1000	1100	21000	1500	1000	
Selenium	<400				400	
Silver	<30				30.0	
Sodium	<1000	17100	20400	27100	1000	
Thallium	<500				500	
Vanadium	<40				40.0	
Zinc	<20				20.0	

ICP complete 9/22/89 mrt

COMMENTS:

copy to: WC DIG MET

SAMPLED BY:

APPROVED BY:

10-11-89

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 11. 1989

Page 2

WC MET DIG
Jim Ben Lawry

DUE DATE: 09-07-89

REPORT TO: BEALE AIR FORCE BASE

REFERENCE NUMBER: S 24242

PAGE 4 OF

DATE:

CH2M HILL/SAC
SAC 24359.RI.04

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER
DATE OF SAMPLE: 09-06-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 09-07-89

Test Methods: ICF metals (6010) DISSOLVED

Units: ug/l

	method		3.0623	4.0624	units	method	DETECT	DATE
	blank		3.0623	4.0624	units	method	LIMIT	ANALYZED
Aluminum	<200				ug/l	6010	200	9/27/89
Antimony	<300						300	
Arsenic	<300						300	
Barium	<100						100	
Beryllium	<5						5.0	
Cadmium	<10						10.0	
Calcium	<1000		12600				1000	
Chromium	<30						30.0	
Cobalt	<40						40.0	
Copper	<30						30.0	
Iron	<100						100	
Lead	<200						200	
Magnesium	<1000		5140				1000	
Manganese	<15		21				15.0	
Molybdenum	<40						40.0	
Nickel	<40						40.0	
Potassium	<1000		2000				1000	
Selenium	<400						400	
Silver	<30						30.0	
Sodium	<1000		19000				1000	
Thallium	<500						500	
Vanadium	<40						40.0	
Zinc	<20						20.0	

ICP complete 9/28/89 msk

COMMENTS:

copy to: WC MET DIG

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

F-262

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 11, 1989

Page 1

WC MET DIG
jim ben lawry

DUE DATE:09-11-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24265

PAGE 3 OF

DATE:

CH2M HILL/SAC
SAC 24359.R1.04

ATTENTION:WAYNE FEARCE

PHONE:

SAMPLE DESCRIPTION:WATER SITE 19.3

SAMPLED BY: CORLEY

DATE OF SAMPLE:09-08-89

DATE RECEIVED:09-11-89

Test Methods: ICP metals (6010) DISSOLVED

Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB		DETECT	DATE
	blank	0631	0633	0634		LIMIT	ANALYZED
Aluminum	<200				6010	200	9/27/89
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	17500	25800	20700		1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100					100	
Lead	<200					200	
Magnesium	<1000	10200	10500	9310		1000	
Manganese	<15		25	<15		15.0	
Molybdenum	<40					40.0	
Nickel	<40					40.0	
Potassium	<1000		2200	2000		1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	21100	23800	22400		1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

COMMENTS:

copy to:WC MET DIG

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

10-11-89

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 12, 1989

Page 1

WC DIG MET
jim ben lawry

DUE DATE:09-12-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24272

CH2M HILL/SAC
SAC 24359.RI.04

PAGE OF
DATE:

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:W SITE 3&4
DATE OF SAMPLE:09-11-89

PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED:09-12-89

Test Methods: ICP metals (5010) DISSOLVED
Units: ug/l

	method blank	2.0632	3.0635	DETECT LIMIT	DATE ANALYZED
Aluminum	Blank	<200	6010	200	9/27/89
Antimony		<300		300	
Arsenic		<300		300	
Barium		<100		100	
Beryllium		<5		5.0	
Cadmium		<10		10.0	
Calcium		<1000	15000 26700	1000	
Chromium		<30		30.0	
Cobalt		<40		40.0	
Copper		<30		30.0	
Iron		<100		100	
Lead		<200		200	
Magnesium		<1000	9310 9420 9170	1000	
Manganese		<15		15.0	
Molybdenum		<40		40.0	
Nickel		<40		40.0	
Potassium		<1000	1200 2100	1000	
Selenium		<400		400	
Silver		<30		30.0	
Sodium		<1000	25700 21800	1000	
Thallium		<500		500	
Vanadium		<40		40.0	
Zinc		<20		20.0	

COMMENTS:

ICP complet 9/27/89 mac

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
JIM BEN LAWRY

F-264

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 13, 1989

Page 2

WC DIG MET
jim ben lawry

DUE DATE:09-13-89

REPORT TO:MCAL AIR FORCE BASE

REFERENCE NUMBER:S 24304

CH2M HILL/SAC
SAC 24359.FI.04

PAGE OF
DATE:

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER
DATE OF SAMPLE:09-12-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED:09-13-89

Test Methods: ICP Metals (6010) DISSOLVED
Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB	DETECT	DATE
	blank	0636	0637	0638	LIMIT	ANALYZED
Aluminum	<200				200	10/5/89
Antimony	<300				300	
Arsenic	<300				300	
Barium	<100				100	
Beryllium	<5				5.0	
Cadmium	<10				10.0	
Calcium	<1000	22600	23300	21800	1000	
Chromium	<30				30.0	
Cobalt	<40				40.0	
Copper	<30				30.0	
Iron	<100				100	
Lead	<200				200	
Magnesium	<1000	9680	10500	14600	1000	
Manganese	<15				15.0	
Molybdenum	<40				40.0	
Nickel	<40				40.0	
Potassium	<1000	2300	2700	<1000	1000	
Selenium	<400				400	
Silver	<30				30.0	
Sodium	<1000	27100	22400	11200	1000	
Thallium	<500				500	
Vanadium	<40				40.0	
Zinc	<20				20.0	

ICP complete 10/6/89 MHC

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

F-265

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 14. 1989

Page 1

WC DIG MET
jim ben lawry

DUE DATE:09-14-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24313

PAGE OF

DATE:

CH2M HILL/SAC,
SAC 24359.RI.04

ATTENTION:WAYNE FEARCE
SAMPLE DESCRIPTION:WATER-SITES.1
DATE OF SAMPLE:09-13-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED:09-14-89

Test Methods: ICF metals (6010) DISSOLVED
Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB		DETECT	DATE
	blank	0639 /	0640 /	0641 /		LIMIT	ANALYZED
Aluminum	<200				6010	200	10/5/89 mg/l
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	28900	11800	13800		1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100					100	
Lead	<200					200	
Magnesium	<1000	12100	5880	8020		1000	
Manganese	<15			18		15.0	
Molybdenum	<40					40.0	
Nickel	<40			60		40.0	
Potassium	<1000	2300	2200	2300		1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	29700	28100	21600		1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

ICP complete 10/6/89 mm

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

F-266

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 15, 1989

Page 2

WC DIG MET
jim ben lawry

DUE DATE: 09-15-89

REPORT TO: REALE AIF FORCE BASE

REFERENCE NUMBER: S 24331

CH2M HILL / SAC
SAC 24359.RI.04

PAGE OF
DATE:

ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER
DATE OF SAMPLE: 09-14-89

PHONE:
SAMPLED BY: COFLE
DATE RECEIVED: 09-15-89

Test Methods: ICF metals (6010) DISSOLVED
Units: ug/l

	method blank	1.BAFB 0642	2.BAFB 0643	3.BAFB 0644	4.BAFB 0645	DETECT LIMIT	DATE ANALYZED
Aluminum	<200			243	<200	200 ug/l	10/5/89 6010
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	14400	10400	11600	9930	1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100			392	<100	100	
Lead	<200	6800	5780	5850		200	
Magnesium	<1000	8020	6800	5200	5550	1000	
Manganese	<15		1740			15.0	
Molybdenum	<40					40.0	
Nickel	<40			1900		40.0	
Potassium	<1000	2000	2200	2000	2200	1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	19500	28400	27800	16700	1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<200					20.0	

COMMENTS:

copy to: WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY: D
DATE: 10/6/89

F-267

Sep. 18, 1989

Page 2

WC DIG MET
jim ben lawry

DUE DATE:09-18-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24337

CH2M HILL/SAC
SAC 24359.RI.04

PAGE OF
DATE:

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 2
DATE OF SAMPLE:09-15-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED:09-18-89


Test Methods: ICP metals (6010) DISSOLVED
Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB		DETECT	DATE
	blank	0646	0647	0648		LIMIT	ANALYZED
Aluminum	<200				6010	200	10/5/89
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<40 <5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	19800	22400	29300		1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100		351	<100		100	
Lead	<200					200	
Magnesium	<1000	12600	12900	13600	19100	1000	
Manganese	<15	90	<15			15.0	
Molybdenum	<40					40.0	
Nickel	<40					40.0	
Potassium	<1000	1300	1700	1200	1100	1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	9240	11400	11600	12300	1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY 
CHECKED BY _____

F-268

Sep. 19, 1989

Page 2

WC DIG MET
jim ben lawry

DUE DATE:09-19-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24350

PAGE OF

DATE:

CH2M HILL/SAC
SAC 24359.RI.04

ATTENTION:WAYNE PEARCE

PHONE:

SAMPLE DESCRIPTION:WATER SITE C.S.19

SAMPLED BY: COFLEY

DATE OF SAMPLE:09-18-89

DATE RECEIVED:09-19-89

Test Methods: ICP metals (5010) DISSOLVED

Units: ug/l

method	1.BAFB Meth	1.BAFB	3.BAFB	4.BAFB	DETECT	DATE
blank	Blank	0649	0650	0651	LIMIT	ANALYZED
Aluminum	<200				200 ug/l	10/5/89
Antimony	<300				300	
Arsenic	<300				300	
Barium	<100	<200			100	
Beryllium	<5				5.0	
Cadmium	<10				10.0	
Calcium	<1000	5100	6100	4900	1000	
Chromium	<30				30.0	
Cobalt	<40				40.0	
Copper	<30				30.0	
Iron	<100				100	
Lead	<200				200	
Magnesium	<1000			1800	1000	
Manganese	<15			43	15.0	
Molybdenum	<40				40.0	
Nickel	<40				40.0	
Potassium	<1000			2300	1000	
Selenium	<400				400	
Silver	<30				30.0	
Sodium	<1000		1310	3340	1000	
Thallium	<500				500	
Vanadium	<40				40.0	
Zinc	<20	70	28	62	20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST _____ APPROVED BY _____

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 21, 1989

Page 1

WC DIG MET
jim ben lawry

DUE DATE:09-21-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24387

CH2M HILL/SAC
SAC 24359.R1.04

PAGE OF

DATE:

ATTENTION:WAYNE FEARCE
SAMPLE DESCRIPTION:WATER SITE 13
DATE OF SAMPLE:09-20-89

PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED:09-21-89

Test Methods: ICP metals (6010) DISSOLVED
Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB	4.BAFB	DETECT	DATE
	blank	0660	0661	0662	0663	LIMIT	ANALYZED
Aluminum	<200					200 ug/l	10/6/89 60
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	29000	49700	10300	36900	1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100				159	100	
Lead	<200					200	
Magnesium	<1000	19200	32700	7030	25000	1000	
Manganese Found	<15		<15	<15	<15	15.0	
Molybdenum	<40					40.0	
Nickel	<40					40.0	
Potassium Found	<1000		<1000	<1000	<1000	1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	14400	19000	10700	16400	1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc Found	<20		<20	<20		20.0	

COMMENTS:

copy to:WC DIG MET

ANALYST ✓FRB 10/17/89

APPROVED BY _____

ICP complete 10/17/89

COMPLETED BY _____
CHECKED BY _____

F-270

CH2M Hill Laboratory
5090 Caterpillar Road, Redding, Ca 96002

Sep. 21, 1987

Page 2

WC DIG MET
jim ben laury

DUE DATE:09-20-89

REPORT TO:BEALE AIR FORCE BASE

REFERENCE NUMBER:S 24372

PAGE OF

DATE:

CH2M HILL/SAC
SAC 24359.RI.04

ATTENTION:WAYNE FEARCE

PHONE:

SAMPLE DESCRIPTION:WATER SITE 2.13.16

SAMPLED BY: CORLEY

DATE OF SAMPLE:09-19-89

DATE RECEIVED:09-20-89

Test Methods: ICP metals (6010) DISSOLVED
Units: ug/l

	method	1.BAFB	2.BAFB	3.BAFB	4.BAFB	DETECT	DATE
	blank	0656	0657	0658	0659	LIMIT	ANALYZED
Aluminum	<200					200 ug/l	9/21/89
Antimony	<300					300	
Arsenic	<300					300	
Barium	<100					100	
Beryllium	<5					5.0	
Cadmium	<10					10.0	
Calcium	<1000	26500	37600	59900	31200	1000	
Chromium	<30					30.0	
Cobalt	<40					40.0	
Copper	<30					30.0	
Iron	<100					100	
Lead	<200					200	
Magnesium	<1000	12000	23500	33300	21300	1000	
Manganese	<15		436	<15		15.0	
Molybdenum	<40					40.0	
Nickel	<40					40.0	
Potassium	<1000					1000	
Selenium	<400					400	
Silver	<30					30.0	
Sodium	<1000	10900	26400	19200	14600	1000	
Thallium	<500					500	
Vanadium	<40					40.0	
Zinc	<20					20.0	

COMMENTS:

copy to:WC DIG MET

ICP complete 10/17/89 MMC

ANALYST _____ APPROVED BY _____

COMPLETE BY 6
CHECKED BY _____

F-271

3
BLANKS

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB5

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum	200.0	U	200.0	U	200.0	U	200.0	U	200.0	U	P
Antimony	300.0	U	300.0	U	300.0	U	300.0	U	300.0	U	P
Arsenic	300.0	U	300.0	U	300.0	U	300.0	U	300.0	U	P
Barium	100.0	U	100.0	U	100.0	U	100.0	U	100.0	U	P
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	P
Calcium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Chromium	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	P
Cobalt	40.0	U	40.0	U	40.0	U	40.0	U	40.0	U	P
Copper	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	P
Iron	100.0	U	100.0	U	100.0	U	100.0	U	100.0	U	P
Lead	200.0	U	200.0	U	200.0	U	200.0	U	200.0	U	P
Magnesium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Manganese	15.0	U	15.0	U	15.0	U	15.0	U	15.0	U	P
Molybdenum	40.0	U	40.0	U	40.0	U	40.0	U	40.0	U	P
Nickel	40.0	U	40.0	U	40.0	U	40.0	U	40.0	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Selenium	400.0	U	400.0	U	400.0	U	400.0	U	400.0	U	P
Silver	30.0	U	30.0	U	30.0	U	30.0	U	30.0	U	P
Sodium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Thallium	500.0	U	500.0	U	500.0	U	500.0	U	500.0	U	P
Vanadium	40.0	U	40.0	U	40.0	U	40.0	U	40.0	U	P
Zinc	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	P

ICP metals

524868

524887

524898

524925

524934

524939

524954

524957

525000

525010

525000

FORM III - IN

7/87

3
BLANKS

Contract: BAFB

SDG No.: BAFB5_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

[illegible]

SCP Metals

S24868	S24939
S24887	S24954
S24898	S24957
S24925	S25000
S24934	S25010
	S25020

FORM II ~ IN

7/87

3
BLANKS

Lab Name: CH2MHILL_____

Contract: BAFB_____

Lab Code: LRD_____

Case No.: _____

SAS No.: _____

SDG No.: BAFB7_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L)						Prepa- ration Blank	C	M
			1	C	2	C	3	C			
Aluminum			200.0	U	200.0	U	200.0	U	200.0	U	P
Antimony			300.0	U	300.0	U	300.0	U	300.0	U	P
Arsenic			300.0	U	300.0	U	300.0	U	300.0	U	P
Barium			100.0	U	100.0	U	100.0	U	100.0	U	P
Beryllium			5.0	U	5.0	U	5.0	U	5.0	U	P
Cadmium			10.0	U	10.0	U	10.0	U	10.0	U	P
Calcium			1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Chromium			30.0	U	30.0	U	30.0	U	30.0	U	P
Cobalt			40.0	U	40.0	U	40.0	U	40.0	U	P
Copper			30.0	U	30.0	U	30.0	U	30.0	U	P
Iron			100.0	U	100.0	U	100.0	U	100.0	U	P
Lead			200.0	U	200.0	U	200.0	U	200.0	U	P
Magnesium			1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Manganese			15.0	U	15.0	U	15.0	U	15.0	U	P
Molybdenum			40.0	U	40.0	U	40.0	U	40.0	U	P
Nickel			40.0	U	40.0	U	40.0	U	40.0	U	P
Potassium			1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Selenium			400.0	U	400.0	U	400.0	U	400.0	U	P
Silver			30.0	U	30.0	U	30.0	U	30.0	U	P
Sodium			1000.0	U	1000.0	U	1000.0	U	1000.0	U	P
Thallium			500.0	U	500.0	U	500.0	U	500.0	U	P
Vanadium			40.0	U	40.0	U	40.0	U	40.0	U	P
Zinc			20.0	U	20.0	U	20.0	U	20.0	U	P

S25059
S25088
S25118
S25151

FORM III - IN

7/87

3
ELANKS

Contract: BAFB

Case No.: _____

SDG No.: BAF36

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

[illegible]

FORM III - IN

7/87

METHOD BLANKS
Herbicides (SW8150)

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: S02069B1
 Client Sample ID: QC BLANK

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 02/06/89
 Date Analyzed: 02/07/89
 Dilution Factor: 1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
94-75-7	2,4-D	10 U		
93-72-1	Silvex	2 U		
93-76-5	2,4,5-T	2 U		

	3,5-Dichlorobenzoic acid - SS	98		

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

Handwritten initials

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 02/08/89
Lab Sample ID: 50208981 Sample Matrix: SOIL Date Analyzed: 02/08/89
Client Sample ID: QC BLANK Percent Moisture: Dilution Factor: 1.0

SDWA HERBICIDE COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
94-75-7	2,4-D	10 U		
93-72-1	Silvex	2 U		
93-76-5	2,4,5-T	2 U		

	3,5-Dichlorobenzoic acid - SS	35		

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

METHOD BLANKS

Purgeable Halocarbons (SW8010)
Purgeable Aromatics (SW8020)

[illegible]

2. 1. 1.

151-152

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

THE LATE: 10-1 - 10

the 1990s, the number of people in the United States who are 65 years of age or older is projected to increase from 20 million to 30 million, and the number of people 75 years of age or older is projected to increase from 10 million to 15 million (U.S. Census Bureau, 1996).

100

[illegible]

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971) using a Shimadzu 1601 UV-Visible Spectrophotometer. The concentration of chlorophyll was expressed in $\mu\text{g mL}^{-1}$.

THE FRESHWATER SHELL

SA 77-100-11-59

DATE RECEIVED:

DATE GRANTED :

DATE: 1-19-10

Extraction method: EFM 90.0

[illegible]

72 73 74

1111

—

PARFLED 81: LEFIS CLEEN

DATE RECEIVED: 2-17-67

100-1 (100-1) (100-1) (100-1)

| | Set 401
INIT | METHOD
BLANK | 1.0459 | 2.0431 | | |
|---------------------------|-----------------|-----------------|--------|--------|--|--|
| Chloroethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Trichloroethylene | 5 | <5 | <5 | <5 | | |
| Trichlorofluoroethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| trans-1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Chloroform | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| cis-1,2-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| Trichloroethene | ↓ | ↓ | 30 | ↓ | | |
| 1,2-Dichloroethane | ↓ | ↓ | <1 | ↓ | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| trans-1,2-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | <1 | ↓ | | |
| 1,1-Dichloroethene | ↓ | ↓ | <1 | ↓ | | |
| Chlorobenzene | ↓ | ↓ | <1 | ↓ | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| Bromochloroethane SS | | 100% | 128% | 98% | | |

2-24-89 2-24-89 3-24-89
SUMMER:SS-Surrogate standard reported as percent recovery
100% 100%

24 Aug 1951

AF 44 JUL 50 H. DKB

CLASSIFIED BY

1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 26

F-278

Feb. 17, 1989

Page 1

LAUREL FRED LINE FARM
TRAC

DATE: 02-15-89

McM HILL LABORATORY
ATTENTION: LAUREL FARM

REFERENCE NUMBER: SF 02083

PAGE 1A

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 02-17-89

SAMPLE DESCRIPTION: WATER SITE 13
DATE OF SAMPLE: 02-13-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-802-8020

() mg/l (✓) ug/l () ng/lg () ug/lg

Extraction method: EPA 5030

| | DETECT | METHOD
BLANK | 1.0459 | 2.0461 | | |
|-------------------------|--------|-----------------|---------|---------|--|--|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | ↓ | <1 | <1 | <1 | | |
| Benzene | ↓ | | <1 | | | |
| Toluene | ↓ | | 11 | | | |
| Chlorobenzene | ↓ | | <1 | | | |
| Ethyl Benzene | ↓ | | | | | |
| Total Xylenes | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Trichloroethylene SS | ↓ | 100% | 97% | 98% | | |
| | | 2-24-89 | 2-24-89 | 2-24-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Signature)

APPROVED BY

DATE RECEIVED BY

DATE RECEIVED BY

CHEN HILL LABORATORY
2218 Railroad Avenue, Redwood, CA 95061

Feb. 17, 1989

Page 1

LAUREY FRED MIKE RANDY
TRACY

DUE DATE: 03-16-89

REPORT TO: REALE AIR FORCE BASE
CHEN HILL SAC
SAC 24359.R1.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 18
DATE OF SAMPLE: 02-15-89
DATE EXTRACTED:
DATE ANALYZED:
Test Method: EPA-801-90.0
Extraction Method: EPA 8030

REFERENCE NUMBER: SP 21382
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS COFFEY
DATE RECEIVED: 02-16-89

| | DETECT method | 1.0455 | 2.0457 | 3.0453 |
|-------------------------|---------------|---------|---------|---------|
| | 100% | 97% | 91% | 95% |
| tert-Butyl Methyl Ether | <1 | <1 | <1 | <1 |
| Benzene | <1 | <1 | <1 | <1 |
| Toluene | 2 | 2 | 2 | 2 |
| Chlorobenzene | <1 | <1 | <1 | <1 |
| Ethyl benzene | | | | |
| Total Xylenes | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| 1,4-Dichlorobenzene | | | | |
| Trifluorotoluene SS: | 100% | 97% | 91% | 95% |
| | 2-24-89 | 2-25-89 | 2-24-89 | 2-24-89 |

SS- Surrogate Standard reported as percent recovery

Comments:

copy to:

ANALYST

Jim

APPROVED BY

COMPLETED BY

ymj

CHECKED BY

F-280

Feb. 16, 1989

Page 1

SEN RICHARD
TRACY

DUE DATE: 03-16-89

REPORT: CHEMICAL ANALYSIS

REFERENCE NUMBER: SP 22382

NAME: RICHARD
ADDRESS: 1234

PAGE OF

DATE:

ATTENTION: LAYNE PEARLE

PHONE:

SAMPLE DESCRIPTION: WATER SITE 18.7

SAMPLED BY: CHRIS COFLEY

DATE OF SAMPLE: 02-15-89

DATE RECEIVED: 02-16-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-821-B-810

() mg/l () ug/l () ng/l () ug/g

Extraction Method: EPA 8160

| | detect | method | | | 3.0458 |
|---------------------------|--------|--------|--|--|--------|
| | LIMIT | Blank | | | |
| Chloroethane | 1 | <1 | | | <1 |
| Bromoethane | 1 | <1 | | | <1 |
| Dichlorodifluoroethane | 1 | <1 | | | <1 |
| Chloroethane | 1 | <1 | | | <1 |
| Tetrafluoroethane | 5 | <5 | | | <5 |
| Trichlorofluoroethane | 1 | <1 | | | <1 |
| 1,1-Dichloroethene | 1 | <1 | | | <1 |
| 1,1-Trichloroethene | 1 | <1 | | | <1 |
| trans-1,2-Dichloroethene | 1 | <1 | | | <1 |
| Chloroform | 1 | <1 | | | <1 |
| 1,2-Dichloroethane | 1 | <1 | | | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | | | <1 |
| Carbon Tetrachloride | 1 | <1 | | | <1 |
| Bromodichloromethane | 1 | <1 | | | <1 |
| 1,2-Dichloropropane | 1 | <1 | | | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | | | <1 |
| Trichloroethene | 1 | <1 | | | <1 |
| Dibromochloromethane | 1 | <1 | | | <1 |
| 1,1,2-Trichloroethane | 1 | <1 | | | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | | | <1 |
| Bromotoluene | 1 | <1 | | | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | | | <1 |
| Tetrachloroethane | 1 | <1 | | | <1 |
| Chlorobenzene | 1 | <1 | | | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | | | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | | | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | | | <1 |
| Bromochloroethane SS | 1 | <1 | | | <1 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST

(Signature)

APPROVED BY

COMPLETED BY

CHECKED BY

F-281

CH. HILL Laboratory
2213 Railroad Avenue, Redding, CA 96001

Feb. 14, 1989

Page 1

ION RICHARD

TRAC

DUE DATE: 03-10-89

REPORT TO: BEALE AIR FORCE BASE

CH. HILL SAC

SAC 24359.FI.04

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER SILE 18 -

DATE OF SAMPLE: 02-13-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-801-8010

Extraction Method: EPA 8030

REFERENCE NUMBER: SF 72333

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 02-14-89

| | detect
LIMIT | Method
Blank | 1.18 | 2.0448 | | |
|----------------------------|-----------------|-----------------|------|--------|--|--|
| Chloroethane | 1 | <1 | <1 | <1 | | |
| Bromochloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Dichlorodifluoroethane | ↓ | ↓ | ↓ | ↓ | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | | |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Methylene chloride | 5 | <5 | <5 | <5 | | |
| Trichlorofluoroethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| trans-1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Chloroform | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Carbon tetrachloride | ↓ | ↓ | ↓ | ↓ | | |
| Bromodichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1-Dichloropropane | ↓ | ↓ | ↓ | ↓ | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | | |
| Dibromochloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| Bromochloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| *** ION SURROGATE RECOVERY | | 100% | 94% | 92% | | |

COMMENTS:

copy to:

ANALYST

(J.W.)

APPROVED BY

DKB

COMPLETED BY

ANALYST

F-282

CH2M Hill Laboratory
2218 Railroad Avenue, Reading, CA 96001

Feb. 14, 1989

Page 2

SEN RICH TARTRETH
TRACY

DUE DATE: 03-10-89

REPORT TO: KEVIN WIP FORCE BASE
CH2M HILL/SAC
SAC 24359.F1.04

REFERENCE NUMBER: SP 22333

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS COFFEE

DATE RECEIVED: 02-14-89

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER SITE 18

DATE OF SAMPLE: 02-13-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-502-8020

() mg/l

(✓) ug/l

() mg/kg

() ug/kg

Extraction method: EPA 5030

| | DETECT
LIMIT | 1. TB | 2. 0448 | method
Blank | | |
|---------------------------|-----------------|---------|---------|-----------------|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | | |
| Benzene | | | <1 | | | |
| Toluene | | | 3 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| meta-Xylene | | | | | | |
| o-Xylene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ✓ | ✓ | ✓ | ✓ | | |
| 2. TBT SURROGATE RECOVERY | | 97% | 96% | 100% | | |
| | | 2-24-89 | 2-24-89 | 2-24-89 | | |

CC: TMS:

CCP: 10:

ANALYST

J.W.

APPROVED BY

COMPLETED BY
L. J. J. J.

F-283

5. 2. 1.

105 1015:00-05:00

REF ID: A66545

የገንዘብ

FILE:

$C = \frac{1}{\sqrt{\mu_0 \epsilon_0}}$

SAMPLED BY: CHAS. L. FLE

DATE RECEIVED: 01-15-20

1911

THE FOLLOWING TABLES :

2000 年 12 月 10 日

Extraction method: EFA (50)

(299/1) (299/1) (299/1) (299/1)

[illegible]

44 : 2 : 1

1. $f = C$, $0 \leq C \leq 1$

IN COPY - 5

• 46 •

F-284

6. 2. 2.

۱۰۰۰

LA 64-6305-10 50

REFERENCE NUMBER: 22345
 PAGE: 1
 DATE:
 FROM:
 SUBJECT: CHRIS COPEL
 DATE RECEIVED: 02-15-97

| | | | |
|-------|--------|---------|--------|
| RETEL | method | 1.18418 | 2.0452 |
| LIPII | Blank | | |

Verf. 3:

100, 110

• ' ~ ~ ~ !

RECEIVED BY
RECEIVED BY

F - 285

Feb. 15, 1989

Page 1

CHON HILL Laboratory
2013 F. Road Avenue, Redding, CA 96001

Ben Riech
LABORATORY FILE
TRAC)

DUE DATE: 2-14-89

REPORT TO: PEOPLE AIR FORCE BASE
CHON HILL SAC
SAC 0435-1.F1.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 23
DATE OF SAMPLE: 02-15-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-802-80.0 () mg/l () mg/kg () mg/l
Extraction method: EPA 8030

REFERENCE NUMBER: SP 22375
PAGE 01
DATE:
PHONE:
SAMPLED : : CLIENT
DATE RECEIVED: 02-16-89

| | DETECT | method | 1.15 | 1.45 | 3.0454 |
|-------------------------|--------|---------|---------|---------|---------|
| | Limit | Blank | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | <1 |
| Toluene | | | | | 2 |
| Chlorobenzene | | | | | <1 |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS | ✓ | 100% | 97% | 92% | 94% |
| | | 2-24-89 | 2-24-89 | 2-24-89 | 2-24-89 |

SS- Surrogate Standard reported as percent recovery.

LABORATORY

copy to:

ANALYST

Ju

APPROVED BY

DLB

COMPLETED BY _____
CHECKED BY _____

Feb. 20, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE:03-17-89

REPORT TO:BEALE AIR FORCE BASE
CHAM HILL/SAC
SAC 24359.PI.04
ATTENTION:WAYNE FEARCE
SAMPLE DESCRIPTION:WATER SITE 2
DATE OF SAMPLE:02-17-89
DATE EXTRACTED:
DATE ANALYZED :
Test Methods: EFA-601-8010
Extraction method: EFA 5030

REFERENCE NUMBER:SP 22398
PAGE OF
DATE:
PHONE:
SAMPLED E : CHRIS CORLEY
DATE RECEIVED:02-20-89

()mg/l ()ug/l () mg/kg ()ug/l

| | detect
LIMIT | method
Blank | 1.0462 | 2.0460 | 3.0463 |
|---------------------------|-----------------|-----------------|--------|--------|--------|
| Chloroethane | 1 | <1 | <1 | <1 | <1 |
| Bromoethane | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 |
| Bromodichloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 108% | 102% | 95% |

COMMENTS:SS-Surrogate standard reported as percent recovery
copy to:

ANALYST: J. Tracy APPROVED BY: _____

COMPLETED BY: _____

CHECKED BY: _____

CH2M HILL LABORATORY
2218 Railroad Avenue, Redding, CA 96001

Feb. 20, 1989

Page 1

BEN RICH MARYBETH
TRACY

DUE DATE: 03-17-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.FI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 02-17-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-802-S020
Extraction Method: EPA 8050

REFERENCE NUMBER: SF 22398
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED: 02-20-89

() mg/l (✓) ug/l () mg/lg () ug/lg

| | DETECT
LIMIT | method
Blank | 1.0462 | 2.0460 | 3.0463 |
|-------------------------|-----------------|-----------------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | < 1 | < 1 | < 1 | < 1 |
| Benzene | | | | | |
| Toluene | | | | | |
| Chlorobenzene | | | | | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS: | | 100% | 96% | 96% | 96% |
| | | 2-25-89 | 2-25-89 | 2-25-89 | 2-25-89 |

SS- Surrogate Standard reported as percent recovery

INITIALS:

copy to:

ANALYST

J.D.

APPROVED BY

CKB

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
1218 Railroad Avenue, Redding, CA 96001

Feb. 21, 1989

Page 1

SEN RICHARD
TRACY

DUE DATE: 03-17-89

REPORT TO: CALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24052.FI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 02-20-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: SP 22405
PAGE OF
DATE:
PHONE:
SAMPLED BY: S MONTEITH
DATE RECEIVED: 02-21-89

Test Methods: EPA-601-9010
Extraction Method: EPA 8030

() mg/l (☒) ug/l () mg/kg () ug/kg

| | detect
Limit | method
Blank | 1.0464 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloroethane | 1 | <1 | <1 | | | |
| Bromochloroethane | 1 | | | | | |
| Dichlorodifluoroethane | 1 | | | | | |
| Vinyl Chloride | 1 | | | | | |
| Chloroethane | 1 | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoroethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | | | | | |
| 1,1-Dichloroethane | 1 | | | | | |
| trans-1,2-Dichloroethene | 1 | | | | | |
| Chloroform | 1 | | | | | |
| 1,2-Dichloroethane | 1 | | | | | |
| 1,1,1-Trichloroethane | 1 | | | | | |
| Carbon Tetrachloride | 1 | | | | | |
| Bromodichloroethane | 1 | | | | | |
| 1,2-Dichloropropane | 1 | | | | | |
| cis-1,3-Dichloropropene | 1 | | | | | |
| Trichloroethene | 1 | | | | | |
| Dibromochloroethane | 1 | | | | | |
| 1,1,2-Trichloroethane | 1 | | | | | |
| trans-1,3-Dichloropropene | 1 | | | | | |
| Bromoform | 1 | | | | | |
| 1,1,1,2-Tetrachloroethane | 1 | | | | | |
| Tetrachloroethene | 1 | | | | | |
| Chlorobenzene | 1 | | | | | |
| 1,3-Dichlorobenzene | 1 | | | | | |
| 1,2-Dichlorobenzene | 1 | | | | | |
| 1,4-Dichlorobenzene | 1 | | | | | |
| Bromochloroethane SS | 1 | 100% | 114 | | | |

2-25-89

2-25-89

NOTE: SS-Duplicate standard reported as percent recovery
copy to:

ANALYST

APPROVED BY

PREPARED BY

DATE BY

F-289

Feb. 21, 1989

Page 2

BEN RICH ~~AS SAC~~
TRACY

LOE DATE: 03-17-89

REPORT TO: SCALE AIR FORCE BASE

REFERENCE NUMBER: SP 22405

CHCM HILL/SAC
SAC 01792.41.14

PAGE OF
DATE:

ATTENTION: WAIVE FEE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 02-20-89

PHONE:
SAMPLED BY: S MONTEITH
DATE RECEIVED: 02-21-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA 812-BJ20

mg/l (✓) ug/l () mg/kg () mg/kg

Extraction method: EPA 8000

RETEL ^{method} 3.12 1.0364

| | INIT | | | | | |
|-------------------------|------|------|-----|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Triethylamine SS | | 1.0% | 0.2 | | | |

For recovery standard reported as percent recovery

NOTE:

copy to:

ANALYST (Signature) APPROVED BY _____

RECEIVED BY _____
MAILED BY _____

Feb. 22, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 03-20-89

REPORT TO: BEALE AIR FORCE BASE

CH2M HILL/SAC

SAC 24359.RI.04

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER SITE 1

DATE OF SAMPLE: 02-21-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-601-8010

Extraction method: EPA 5030

REFERENCE NUMBER: SF-22421

PAGE OF

DATE:

PHONE:

SAMPLED BY: CRIS CORLEY

DATE RECEIVED: 02-22-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | Method
Blank | 1.T-BLANK | 2.0442 | 3.0443 | 4.0444 |
|---------------------------|-----------------|-----------------|-----------|--------|--------|--------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromedichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 2 | 3 | 4 |
| Dibromochloromethane | 1 | 1 | 1 | <1 | <1 | <1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 113% | 94% | 100% | 118% |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

F22

F-291

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Feb. 22, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE:03-20-89

REPORT TO:SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.A1.04

REFERENCE NUMBER:SP 22421

PAGE OF

DATE;

PHONE;

SAMPLED BY: CRIS CORLEY

DATE RECEIVED:02-22-89

ATTENTION:WAYNE FEARCE

SAMPLE DESCRIPTION:WATER SITE 1

DATE OF SAMPLE:02-21-89

DATE EXTRACTED;

DATE ANALYZED

Test Methods: EPA-601-8010

Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | METHOD
BLANK | 5.0445 | | | |
|---------------------------|-----------------|-----------------|---------|--|--|--|
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| Chloroform | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | ↓ | ↓ | | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | ↓ | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane ss | | 100% | 95% | | | |
| | | 2-25-89 | 2-25-87 | | | |

COMMENTS:ss- Surrogate Standard reported as percent recovery
copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

F-292

CH2M Hill Laboratory
2218 Railroad Avenue, Redding. CA 96001

Feb. 22, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 03-20-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: SP 22421

PAGE OF

DATE:

PHONE:

SAMPLED BY: CRIS CORLEY

DATE RECEIVED: 02-22-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 1

DATE OF SAMPLE: 02-21-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | DETECT
LIMIT | METHOD
BLANK | 5.0445 | | | |
|-------------------------|-----------------|-----------------|---------|--|--|--|
| tert-Butyl Methyl Ether | 1 | < 1 | < 1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| total xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 95% | | | |
| | | 2-25-89 | 2-25-89 | | | |

SS-Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST



APPROVED BY



COMPLETED BY

CHECKED BY

F-293

BEN RICHARD

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Feb. 23, 1989

Page 1

~~XXXXXXXXXX~~ BEN RICH ~~XXXX~~
TRACY

DUE DATE;03-20-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.R1.04

REFERENCE NUMBER;SP 22428

PAGE OF

DATE;

PHONE;

SAMPLED BY; MONTEITH

DATE RECEIVED;02-23-89

ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER-SITE 1

DATE OF SAMPLE;02-22-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

| | DETECT
LIMIT | METHOD
BLANK | 1.T-BLANK | 2.0446 | 3.0447 | 4.0465 |
|-------------------------|-----------------|-----------------|-----------|--------|--------|-----------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | | <1 |
| Toluene | | | | | | <1 |
| Chlorobenzene | | | | | | <1 |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Trifluorotoluene SS: | | 100% | 97% | 111% | 116% | 97% (5.0) |
| | | 3-7-89 | 3-7-89 | 3-7-89 | 3-7-89 | 3-7-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

Ju

APPROVED BY OK3

COMPLETED BY

CHECKED BY

F-294

Feb. 23, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE;03-20-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER-SITE 1
DATE OF SAMPLE;02-22-89
DATE EXTRACTED;
DATE ANALYZED :

REFERENCE NUMBER;SP 22428
PAGE OF
DATE;
PHONE;
SAMPLED BY; MONTEITH
DATE RECEIVED;02-23-89

Test Methods; EPA-601-8010
Extraction method; EPA 5030

() mg/l () ug/l () mg/kg () ug/kg

| | detect
LIMIT | METHOD
BLANK | 1.T-BLANK | 2.0446 | 3.0447 | 4.0455 |
|---------------------------|-----------------|-----------------|-----------|--------|--------|--------|
| Chloromethane | | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | | | | | | |
| Dichlorodifluoromethane | | | | | | |
| Vinyl Chloride | | | | | | |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | ↓ | | | |
| Chloroform | | | 2 <1 | | | |
| 1,2-Dichloroethane | | | 2 | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloromethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| cis-1,3-Dichloropropene | | | | | | |
| Trichloroethene | | | | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| trans-1,3-Dichloropropene | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | | |
| Tetrachloroethene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | | 100% | 84.37% | 112% | 90% | 97% |
| | | 3-7-89 | 3-7-89 | 3-7-89 | 3-7-89 | 3-7-89 |

COMMENTS;SS-Surrogate standard reported as percent recovery
copy to;

ANALYST (Signature) APPROVED BY DLB

COMPLETED BY _____
CHECKED BY _____
P22

F-295

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Feb. 24, 1989

Page 1

LAUREY RANDY EED MIKE BEN IN RICH X
TRACY

DUE DATE; 03-21-89

REPORT TO; KEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 22445

PAGE OF

DATE;

PHONE;

SAMPLED BY; CORLEY

DATE RECEIVED; 02-24-89

ATTENTION; WAYNE FEARCE

SAMPLE DESCRIPTION; WATER-SITE BG

DATE OF SAMPLE; 02-23-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

DETECT METHOD
LIMIT BLANK 1.0468

| | DETECT | METHOD | LIMIT | | | |
|-------------------------|--------|--------|-------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100% | 97% | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

J. J.

APPROVED BY

CVB

COMPLETED BY

CHECKED BY

Ymg

F-296

Feb. 24, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 03-21-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-SITE BG
DATE OF SAMPLE: 2-23-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SF 22445
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 02-24-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | METHOD
Blank | 1.0468 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | ↓ | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | | | | | |
| 1,1-Dichloroethane | ↓ | | | | | |
| trans-1,2-Dichloroethene | ↓ | | | | | |
| Chloroform | ↓ | | | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloromethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | | | | |
| Dibromochloromethane | ↓ | | | | | |
| 1,1,2-Trichloroethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane SS | | 100% | 90% | | | |

3-7-89

3-7-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

JW

APPROVED BY

OKB

COMPLETED BY

CHECKED BY

mg

F-297

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA

Mar. 14, 1989

Page 1

SEN RICHARD
TRACY

DUE DATE: 03-22-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: SP 22455

PAGE OF

DATE:

PHONE:

SAMPLED BY: S MONTEITH

DATE RECEIVED: 02-27-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 19

DATE OF SAMPLE: 02-24-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8920

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 5050

| | DETECT
LIMIT | METHOD
BLANK | 1. C479 | | | |
|-------------------------|-----------------|-----------------|---------|--|--|--|
| tert-Butyl Methyl Ether | | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| total xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 97% | | | |
| | | 3-7-89 | 3-7-89 | | | |

SS-Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST Jm APPROVED BY CLB

COMPLETED BY _____
CHECKED BY _____

F-298

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 14, 1989

Page 1

GEN RICHARD
19AC1

DUE DATE: 03-22-89

REPORT TO: SEAL AIR FORT BASE
CH2M HILL, INC
PAC 24197.01.04

REFERENCE NUMBER: SP 22455 /

PAGE OF

DATE:

PHONE:

SAMPLED BY: S MONTETH

DATE RECEIVED: 02-27-89

ATTENTION: JANE PEARCE
SAMPLE DESCRIPTION: WATER SITE 19
DATE OF SAMPLE: 02-14-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-801-8010

() mg/l (/) ug/l () mg/kg (/) ug/g

Extraction method: EPA 8000

| | detect
LIMIT | METHOD
BLANK | 1.0479 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | <1 | <1 | | | |
| Dichlorodifluoromethane | 1 | <1 | <1 | | | |
| Vinyl Chloride | 1 | <1 | <1 | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Nethylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| trans-1,2-Dichloroethene | 1 | <1 | <1 | | | |
| Chloroform | 1 | <1 | <1 | | | |
| 1,2-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | | | |
| Carbon Tetrachloride | 1 | <1 | <1 | | | |
| Bromodichloromethane | 1 | <1 | <1 | | | |
| 1,2-Dichloropropane | 1 | <1 | <1 | | | |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Trichloroethene | 1 | <1 | <1 | | | |
| Dibromochloromethane | 1 | <1 | <1 | | | |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | | | |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Bromoform | 1 | <1 | <1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | | | |
| Tetrachloroethene | 1 | <1 | <1 | | | |
| Chlorobenzene | 1 | <1 | <1 | | | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | | | |
| Bromochloromethane SS | 100% | 100% | 100% | | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST JW APPROVED EVR

F-299

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 1, 1989

Page 4

BEN [REDACTED]
TRACY

DUE DATE;03-23-89

REPORT TO;SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION;WAYNE FEARCE
SAMPLE DESCRIPTION;WATER SITE 13
DATE OF SAMPLE;02-28-89
DATE EXTRACTED;
DATE ANALYZED :
Test Methods; EPA-601-8010
Extraction method; EPA 5030

REFERENCE NUMBER;SP 22505 :
PAGE OF
DATE;
PHONE;
SAMPLED BY; CHRIS CORLEY
DATE RECEIVED;03-01-89

()mg/l ()ug/l () mg/kg ()ug/kg

| | detect
LIMIT | METHOD
BLANK | 1.0467 | | | |
|---------------------------|-----------------|-----------------|---------------|--|--|--|
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethene | ↓ | ↓ | 160 | | | |
| Chloroform | ↓ | ↓ | 2 | | | |
| 1,2-Dichloroethane | ↓ | ↓ | <1 | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | ↓ | 1500 | | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | 20 | | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | <1 | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | 25 | | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | <1 | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane SS | ↓ | VCFL
3-7-89 | 992
3-7-89 | | | |

COMMENTS;SS-Surrogate standard reported as percent recovery
copy to;

ANALYST [Signature] APPROVED BY [Signature]

F-300

COMPLETED BY
CHECKED BY [Signature]

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 1, 1989

Page 3

TRACY

DUE DATE; 03-23-89

REPORT TO; BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 22505

PAGE OF

DATE;

PHONE;

SAMPLED BY; CHRIS CORLEY

DATE RECEIVED; 03-01-89

ATTENTION; WAYNE PEARCE

SAMPLE DESCRIPTION; WATER SITE 13

DATE OF SAMPLE; 02-28-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

| | DETECT
LIMIT | METHOD
BLANK | 1.0467 | | | |
|-------------------------|-----------------|-----------------|--------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100% | 103 | | | |
| | | 3-7-89 | 3-7-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST ST APPROVED BY [Signature]

COMPLETED BY _____
CHECKED BY _____

F-301

RANDY LAURY FRED MIKE
TRACY

DUE DATE: 03-23-89

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 2, 1989

Page 1

BEN ~~REDACTED~~ Brian MB
TRACY

DUE DATE: 03-25-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.R1.04

REFERENCE NUMBER: SP 22512

PAGE OF

DATE:

PHONE:

SAMPLED BY: MONTEITH

DATE RECEIVED: 03-02-89

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER SITE 13

DATE OF SAMPLE: 03-01-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-601-8010

Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | Method | 1.0470 | | | |
|---------------------------|--------|--------|--------|--|--|--|
| | LIMIT | Blank | | | | |
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | ↓ | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | | | | | |
| 1,1-Dichloroethane | ↓ | | | | | |
| trans-1,2-Dichloroethene | ↓ | | | | | |
| Chloroform | ↓ | | | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloromethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | 18 | | | |
| Dibromochloromethane | ↓ | | <1 | | | |
| 1,1,2-Trichloroethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Bromochloromethane SS | | 100% | 92 | | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

F-302

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 2, 1989

Page 1

LAWRY BEN RANDY FRED MIKE RICH MB B
TRACY

DUE DATE;03-25-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER;SP 22512

PAGE OF

DATE;

PHONE;

SAMPLED BY; MONTEITH

DATE RECEIVED;03-02-89

ATTENTION;WAYNE PEARCE

SAMPLE DESCRIPTION;WATER SITE 13

DATE OF SAMPLE;03-01-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

()mg/l (4)ug/l () mg/kg ()ug/kg

Extraction method: EPA 5030

| | DETECT | method
Blank | | 1.0470 | | | |
|-------------------------|--------|-----------------|---------|--------|--|--|--|
| | LIMIT | | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | | |
| Benzene | | | | | | | |
| Toluene | | | | | | | |
| Chlorobenzene | | | | | | | |
| Ethyl benzene | | | | | | | |
| Total Xylenes | | | | | | | |
| 1,3-Dichlorobenzene | | | | | | | |
| 1,2-Dichlorobenzene | | | | | | | |
| 1,4-Dichlorobenzene | | | | | | | |
| Trifluorotoluene SS | | 100% | 92 | | | | |
| | | 3-14-89 | 3-14-89 | | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST Ju APPROVED BY _____

COMPLETED BY _____

F-303

CHECKED BY _____

Mar. 8, 1989

Page 1

LAWRY FRED MIKE RANDY
TRACY

DUE DATE;03-30-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER;SF 22601

PAGE OF

DATE;

PHONE;

SAMPLED BY; CHRIS CORLEY

DATE RECEIVED;03-08-89

ATTENTION;WAYNE FEARCE

SAMPLE DESCRIPTION;WATER SITE 2

DATE OF SAMPLE;03-07-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods; EPA-602-8020

Extraction method; EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT
LIMIT | Method
86-8 | 1.0476 | 2.0477 | 3.0478 | 4.0480 |
|-------------------------|-----------------|----------------|---------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | <1 | |
| Toluene | | | | 3 | 3 | |
| Chlorobenzene | | | | <1 | <1 | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trifluorotoluene SS: | | 100% | 104% | 103 | 107 | 102 |
| | | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 | 3-17-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

(30)

APPROVED BY

m

COMPLETED BY

CHECKED BY

mg

F-304

Mar. 8, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 03-30-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 03-07-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SF 22601
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED: 03-09-89

() mg/l () ug/l () mg/kg () ug/kg

| | detect
LIMIT | method
Blank | 1.0476 | 2.0477 | 3.0478 | 4.0480 |
|---------------------------|-----------------|-----------------|---------|---------|---------|---------|
| Chloromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | 2 | 2 | ↓ |
| Dibromochloromethane | ↓ | ↓ | ↓ | <1 | <1 | ↓ |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | ↓ | 100% | 89 | 98 | 111 | 100 |
| | | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 | 3-17-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

Confirmations on back

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

P22

F-305

Mar. 3, 1989

Page 1

BEN
TRACY

DUE DATE; 03-26-89

REPORT TO; BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 22542

PAGE OF

DATE;

PHONE;

SAMPLED BY; CORLEY

DATE RECEIVED; 03-03-89

ATTENTION; WAYNE FEARCE
SAMPLE DESCRIPTION; WATER SITE 5
DATE OF SAMPLE; 03-02-89

DATE EXTRACTED;

DATE ANALYZED :

Test Methods: EPA-601-8010

Extraction method; EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | method
Bio | 1.0471 | 2.0472 | 3.0473 | 4.0474 |
|---------------------------|-----------------|---------------|---------|---------|---------|---------|
| Chloromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dibromochloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | ↓ | 100 | 105 | 94 | 96 | 91 |
| | | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 |

COMMENTS; SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED

COMPLETED BY

F-306

CHECKED BY

522

Mar. 9, 1989

Page 1

CH2M Hill Lab
2218 Railroad Avenue, F

LAWRY RANDY FRED MIKE
TRACY

DUE DATE; 03-31-89

REPORT TO; BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 226

PAGE OF

DATE;

PHONE;

SAMPLED BY; MONTEITH

DATE RECEIVED; 03-09-89

ATTENTION; WAYNE PEARCE

SAMPLE DESCRIPTION; WATER SITE 2

DATE OF SAMPLE; 03-08-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l (✓) ug/l () mg

Extraction method; EPA 5030

| | DETECT | method | 1.0481 | | |
|--------------------------|--------|---------|---------|--|--|
| | LIMIT | Blank | | | |
| tert- butyl Methyl Ether | | | <1 | | |
| Benzene | | | <1 | | |
| Toluene | | | 2<1 | | |
| Chlorobenzene | | | <1 | | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS: | | 100% | 93 | | |
| | | 3-16-89 | 3-16-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

J

APPROVED BY

m

COMPLETED BY

CHECKED BY

F-307

Lab
venue, F

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 9, 1989

Page 1

BEN  Brian MB
TRACY

DUE DATE; 03-31-89

SP 2262

REPORT TO; BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 22622

PAGE OF

DATE;

PHONE;

SAMPLED BY; MONTEITH

DATE RECEIVED; 03-09-89

ITH
-09-89

ATTENTION; WAYNE PEARCE

SAMPLE DESCRIPTION; WATER SITE 2

DATE OF SAMPLE; 03-08-89

DATE EXTRACTED;

DATE ANALYZED :

Test Methods; EPA-601-8010

Extraction method; EPA 5030

() ug/l () ug/l () ug/kg () ug/kg

| | detect
LIMIT | method
BLANK | 1.0481 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromoethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | | | | | |
| 1,1-Dichloroethane | ↓ | | | | | |
| trans-1,2-Dichloroethene | ↓ | | | | | |
| Chloroform | ↓ | | | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloromethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | | | | |
| Dibromochloroethane | ↓ | | | | | |
| 1,1,2-Trichloroethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Bromochloromethane SS | | 100% | 10% | | | |

3-16-89

3-16-89

COMMENTS; SS-Surrogate standard reported as percent recovery
copy to;

ANALYST 

APPROVED BY 

COMPLETED BY

CHECKED BY

F-308

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 10, 1989

Page 1

LAWRY FANDY FRED MIKE
TRACY

DUE DATE: 04-01-89

REPORT TO: PEASE AIR FORCE BASE
CH2M HILL/SAC
SAC 14359.RI.04

REFERENCE NUMBER: SF 22643

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 03-10-89

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER-SITE 6

DATE OF SAMPLE: 03-09-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

() mg/l (~~+~~) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | DETECT
LIMIT | Method
Blank | 1.0483 | 2.0484 | 3.0485 | 4.0486 |
|-------------------------|-----------------|-----------------|---------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | <1 | | | |
| Toluene | | | 2 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100% | 113 | 116 | 112 | 111 |
| | | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

J. J.

APPROVED BY

W

COMPLETED BY

CHECKED BY

F-309

Mar. 10, 1989

Page 2

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

BEN RICHARD MB BRIAN
TRACY

DUE DATE: 04-01-89

REPORT TO: PEASE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-SITE 6
DATE OF SAMPLE: 03-09-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SP 22643
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED: 03-10-89

() mg/l () ug/l () mg/kg () ug/kg

| | detect | Method | 1.0483 | 2.0494 | 3.0485 | 4.0486 |
|---------------------------|--------|---------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | | | | | |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | | | | | |
| 1,1-Dichloroethane | ↓ | | | | | |
| trans-1,2-Dichloroethene | ↓ | | | | | |
| Chloroform | ↓ | | | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloromethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | | | | |
| Dibromochloromethane | ↓ | | | | | |
| 1,1,2-Trichloroethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Bromochloromethane SS | | 100% | 148 | 131 | 131 | 133 |
| | | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 | 3-16-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery

copy to:

Matrix Interference resulted in high
Surrogate Recovery

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

P22

F-310

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 10, 1989

Page 2

BEN FICH MARYBETH BRIAN
TRACI

DUE DATE: 04-01-89

REPORT TO: DEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: SF 22644

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 03-10-89

ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER-SITE 319

DATE OF SAMPLE: 03-09-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | DETECT | Method | 487 |
|-------------------------|--------|---------|---------|
| | LIMIT | Blank | 1.0847 |
| tert-Butyl Methyl Ether | 1 | <1 | <1 |
| Benzene | | | |
| Toluene | | | |
| Chlorobenzene | | | |
| Ethyl benzene | | | |
| Total Xylenes | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ |
| Trifluorotoluene SS: | | 100% | 118 |
| | | 3-16-89 | 3-16-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETED BY

CHECKED BY

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 10, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE: 04-01-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.SI.04

REFERENCE NUMBER: SP 22644

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 03-10-89

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-SITE #19
DATE OF SAMPLE: 03-09-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | Method | 487 |
|---------------------------|--------|--------|--------|
| | LIMIT | Blank | 1.0047 |
| Chloromethane | 1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 |
| Methylene chloride | 5 | 5 | 5 |
| Trichlorofluoromethane | 1 | 1 | 1 |
| 1,1-Dichloroethene | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 |
| trans-1,2-Dichloroethane | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 |
| Bromochloromethane SS | 100 | 100 | 100 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to: 3-16-89 3-17-89

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

F-312

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 13, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 04-03-89

REPORT TO: PEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 21
DATE OF SAMPLE: 03-10-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: SP 22659
PAGE OF
DATE:
PHONE:
SAMPLED BY: CRIS CORLEY
DATE RECEIVED: 03-13-89

Test Methods: EPA-601-8010
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | Method
Blank | 1.0482 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | | | | | | |
| Dichlorodifluoromethane | | | | | | |
| Vinyl Chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloromethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| cis-1,3-Dichloropropene | | | | | | |
| Trichloroethene | | | | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| trans-1,3-Dichloropropene | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | | |
| Tetrachloroethene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Bromochloromethane SS | | 100% | 103% | | | |

3-23-89

3-23-89

COMMENTS: SS-Surrogate standard reported as percent recovery

*Surrogate calculated by External ^{copy to:} Standard Method

ANALYST J.W. APPROVED

F-313

COMPLETED BY
CHECKED BY mf

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 13, 1989

Page 3

BEN RICHARD
TRACY

DUE DATE;04-03-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.PI.04

REFERENCE NUMBER;SP 22660

PAGE OF

DATE;

PHONE;

SAMPLED BY; CRIS CORLEY

DATE RECEIVED;03-13-89

ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER SITE 75

DATE OF SAMPLE;03-20-89

DATE EXTRACTED;

DATE ANALYZED :

Test Methods; EPA-601-8010

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

| | detect | method | 1.0488 | | | |
|---------------------------|--------|--------|-----------|--|--|--|
| | LIMIT | Blank | | | | |
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | 15 | 15 | | | |
| Trichlorofluoromethane | ↓ | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | | | |
| Chloroform | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | ↓ | ↓ | | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | ↓ | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane SS | ↓ | 100% | 135% 107% | | | |

3-23-89

3-23-89

COMMENTS;SS-Surrogate standard reported as percent recovery

*Surrogate calculated by External copy to:
Standard Method

ANALYST T.D. APPROVED N

COMPLETED BY ND
CHECKED BY ND

F-314

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 14, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 04-04-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 5
DATE OF SAMPLE: 03-13-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030REFERENCE NUMBER: sp 22674
PAGE OF
DATE:
PHONE:
SAMPLED BY: chris corley
DATE RECEIVED: 03-14-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | method | 1.0489 | | | |
|---------------------------|--------|---------|---------|--|--|--|
| | LIMIT | Blank | | | | |
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | | | | | |
| Dichlorodifluoromethane | 1 | | | | | |
| Vinyl Chloride | 1 | | | | | |
| Chloroethane | 1 | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | | | | | |
| 1,1-Dichloroethane | 1 | | | | | |
| trans-1,2-Dichloroethene | 1 | | | | | |
| Chloroform | 1 | | | | | |
| 1,2-Dichloroethane | 1 | | | | | |
| 1,1,1-Trichloroethane | 1 | | | | | |
| Carbon Tetrachloride | 1 | | | | | |
| Bromodichloromethane | 1 | | | | | |
| 1,2-Dichloropropane | 1 | | | | | |
| cis-1,3-Dichloropropene | 1 | | | | | |
| Trichloroethene | 1 | | | | | |
| Dibromochloromethane | 1 | | | | | |
| 1,1,2-Trichloroethane | 1 | | | | | |
| trans-1,3-Dichloropropene | 1 | | | | | |
| Bromoform | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | 1 | | | | | |
| Tetrachloroethene | 1 | | | | | |
| Chlorobenzene | 1 | | | | | |
| 1,3-Dichlorobenzene | 1 | | | | | |
| 1,2-Dichlorobenzene | 1 | | | | | |
| 1,4-Dichlorobenzene | 1 | | | | | |
| Bromochloromethane SS | 1 | 100% | 107% | | | |
| | | 3-23-89 | 3-23-89 | | | |

COMMENTS: SS-Surrogate standard reported as percent recovery

* Surrogate calculated by External copy to;
Standard methodANALYST JWAPPROVED BY hCOMPLETED BY hCHECKED BY h

F-315

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 15, 1989

Page 2

BEN RICH MB BRIAN
TRACY

DUE DATE;04-05-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER SITE 16
DATE OF SAMPLE;03-14-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER;SP 22683
PAGE OF
DATE;
PHONE;
SAMPLED BY; CORLEY
DATE RECEIVED;03-15-89

Test Methods; EPA-802-8020
Extraction method; EPA 5030

()mg/l (4)ug/l () mg/kg ()ug/kg

| | DETECT
LIMIT | Method
Blank | 1.0490 | | | |
|-------------------------|-----------------|-----------------|---------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 116 | | | |
| | | 3-23-89 | 3-24-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST TR APPROVED BY W

COMPLETED BY TR
CHECKED BY TR

F-316

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 15, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 04-05-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 16
DATE OF SAMPLE: 03-14-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SP 22683
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 03-15-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | Method | 1.0490 | | | |
|---------------------------|--------|--------|--------|--|--|--|
| | LIMIT | Blank | | | | |
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | 1 | 1 | | | |
| Dichlorodifluoromethane | 1 | 1 | 1 | | | |
| Vinyl Chloride | 1 | 1 | 1 | | | |
| Chloroethane | 1 | 1 | 1 | | | |
| Methylene chloride | 5 | <5 | | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | 1 | 1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | | | |
| Chloroform | 1 | 1 | 1 | | | |
| 1,2-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | | | |
| Carbon Tetrachloride | 1 | 1 | 1 | | | |
| Bromodichloromethane | 1 | 1 | 1 | | | |
| 1,2-Dichloropropane | 1 | 1 | 1 | | | |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Trichloroethene | 1 | 1 | 1 | | | |
| Dibromochloromethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Bromoform | 1 | 1 | 1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | | | |
| Tetrachloroethene | 1 | 1 | 1 | | | |
| Chlorobenzene | 1 | 1 | 1 | | | |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | | | |
| Bromochloromethane SS | 1 | 100% | * 102 | | | |

COMMENTS: SS-Surrogate standard reported as percent recovery

* Surrogate calculated by External standard method
copy to:

ANALYST Jim APPROVED: F-317

COMPLETED BY
CHECKED BY Jim

Mar. 18, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE: 04-06-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER 1
DATE OF SAMPLE: 03-16-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SF 22738
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 03-17-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect
LIMIT | method
Blank | 1.0491 | 2.0492 | 3.0493 | 4.0494 |
|---------------------------|-----------------|-----------------|--------|--------|--------|--------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | 2 <1 | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | <1 | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | 2 | 8 | 7 |
| Dibromochloromethane | ↓ | ↓ | ↓ | <1 | <1 | <1 |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | ↓ | 100% | 111 | 122 | 106 | 124 |

3-30-89 3-30-89 3-30-89 3-30-89 3-30-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST SD APPROVED

F-318

COMPLETED BY _____
CHECKED BY _____
F22

4/14

Mar. 18, 1989

Page 1

BEN RICH MB PRIAN
TRACY

DUE DATE; 04-06-89

REPORT TO; BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER; SP 22738

PAGE OF

DATE;

PHONE;

SAMPLED BY; CORLEY

DATE RECEIVED; 03-17-89

ATTENTION; WAYNE FEARCE

SAMPLE DESCRIPTION; WATER SITE 1

DATE OF SAMPLE; 03-16-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods: EPA-602-8020

() mg/l () ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

| | DETECT
LIMIT | method
Blank | 1.0491 | 2.0492 | 3.0493 | 4.0494 |
|-------------------------|-----------------|-----------------|---------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | <1 | <1 | <1 | | |
| Toluene | | | 1 | 51 | | |
| Chlorobenzene | | <1 | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trifluorotoluene SS | | 100% | 101 | 106 | 101 | 113 |
| | | 3-30-89 | 3-30-89 | 3-30-89 | 3-30-89 | 3-30-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

J.D.

APPROVED BY

m

COMPLETED BY

CHECKED BY

F-319

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 18, 1989

Page 1

LAWRY FRED MIKE RANDY
TRACY

DUE DATE: 04-07-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.FI.04

REFERENCE NUMBER: SP 22739

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 03-18-89

ATTENTION: WAYNE FEARCE

SAMPLE DESCRIPTION: WATER 1-C-SSW

DATE OF SAMPLE: 03-17-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | DETECT
LIMIT | method
Blank | 1.0495 | 2.0496 | 3.0497 | 4.0498 |
|-------------------------|-----------------|-----------------|---------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | <1 | |
| Toluene | | | | | 2 | |
| Chlorobenzene | | | | | <1 | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 104 | 102 | 103 | 89 |
| | | 3-31-89 | 3-31-89 | 3-31-89 | 3-31-89 | 3-31-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

APPROVED BY

F-320

COMPLETED BY

CHECKED BY

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 18, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE: 04-07-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: SF 22739

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 03-18-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 1

DATE OF SAMPLE: 03-17-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-601-8010

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | detect
LIMIT | Method
Blank | 1.0495 | 2.0496 | 3.0497 | 4.0498 |
|---------------------------|-----------------|-----------------|--------|--------|--------|--------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 5 | <5 | <5 | <5 | <5 | <5 |
| Methylene chloride | 1 | <1 | <1 | <1 | <1 | <1 |
| Trichlorofluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 100% | 93 | 93 | 93 | 93 | 121 |

3-31-89 3-31-89 3-31-89 3-31-89 3-31-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST J. J. APPROVED M

F-321

COMPLETED BY _____
CHECKED BY _____

4/14

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 21, 1989

Page 1

UNOFFICIAL REPORT
FAC:

DUE DATE: 04-11-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/FAC
SAC 24757.FI.04

REFERENCE NUMBER: 22760

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 03-21-89

ATTENTION: LAINE FEARCE

SAMPLE DESCRIPTION: WATER-SITE 1

DATE OF SAMPLE: 03-20-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-600-8-80-20

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 8030

| | DETECT
LIMIT | method
Blank | 1.0479 | | | |
|-------------------------|-----------------|-----------------|--------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | 11111 | 100% | 95. | | | |
| | | 4-3-89 | 4-3-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST J.W. APPROVED BY [Signature]

COMPLETED BY _____
CHECKED BY _____

F-322

CHEM Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 21, 1989

Page 1

BEN RICHARD
TRACY

DUE DATE: 04-11-89

REPORT TO: SEATTLE AIR FORCE BASE
CHEM HILL/SAC
SAC 24754.SI.04

REFERENCE NUMBER: 68 22760

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 03-21-89

ATTENTION: JAYNE PEARCE

SAMPLE DESCRIPTION: WATER-SITE 1

DATE OF SAMPLE: 03-20-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-821-2010

() mg/l (✓) ug/l () mg/lg () ug/lg

Extraction method: EPA 5030

| | detect
LIMIT | method
Blank | 1.0409 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | <1 | <1 | | | |
| Dichlorodifluoroethane | 1 | <1 | <1 | | | |
| Vinyl Chloride | 1 | <1 | <1 | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| trans-1,2-Dichloroethane | 1 | <1 | <1 | | | |
| Chloroform | 1 | <1 | <1 | | | |
| 1,2-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | | | |
| Carbon Tetrachloride | 1 | <1 | <1 | | | |
| Bromodichloromethane | 1 | <1 | <1 | | | |
| 1,2-Dichloropropane | 1 | <1 | <1 | | | |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Trichloroethane | 1 | <1 | <1 | | | |
| Dibromochloromethane | 1 | <1 | <1 | | | |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | | | |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Bromoform | 1 | <1 | <1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | | | |
| Tetrachloroethane | 1 | <1 | <1 | | | |
| Chlorobenzene | 1 | <1 | <1 | | | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | | | |
| Bromochloromethane SS | 100% | 100% | 95 | | | |

4-3-89

4-3-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

J. J.

APPROVED BY

J. J.

COMPLETED BY

F-323

CHECKED BY

J. J.

Page 2

BEN RICHARD
TRACY

DUE DATE:

REPORT TO: PEALE AIR FORCE BASE
SECOND COLUMN CONFIRMATION
VOCOL CAPILLARY

REFERENCE NUMBER; 22761

PAGE OF

DATE:

PHONE:

SAMPLED BY:

DATE RECEIVED:

ATTENTION:

SAMPLE DESCRIPTION:

DATE OF SAMPLE:

DATE EXTRACTED:

DATE ANALYZED :

Test Methods: EPA-601-8010

() mg/l () ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

| | detect | | | | | |
|---------------------------|--------|--|----|--|--|--|
| | LIMIT | | | | | |
| Chloromethane | | | | | | |
| Bromomethane | | | | | | |
| Dichlorodifluoromethane | | | | | | |
| Vinyl Chloride | | | | | | |
| Chloroethane | | | | | | |
| Methylene chloride | | | | | | |
| Trichlorofluoromethane | | | | | | |
| 1,1-Dichloroethene | | | | | | |
| 1,1-Dichloroethane | | | | | | |
| trans-1,2-Dichloroethene | | | | | | |
| Chloroform | | | | | | |
| 1,2-Dichloroethane | | | | | | |
| 1,1,1-Trichloroethane | | | | | | |
| Carbon Tetrachloride | | | | | | |
| Bromodichloromethane | | | | | | |
| 1,2-Dichloropropane | | | | | | |
| cis-1,3-Dichloropropene | | | | | | |
| Trichloroethene | | | 28 | | | |
| Dibromochloromethane | | | | | | |
| 1,1,2-Trichloroethane | | | | | | |
| trans-1,3-Dichloropropene | | | | | | |
| Bromoform | | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | | |
| Tetrachloroethene | | | | | | |
| Chlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Bromochloromethane SS | | | | | | |

4-4-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED BY

COMPLETED BY:

CHECKED BY

F-324

CHEM Hill Laboratory
2213 Railroad Avenue, Redding, CA 96001

Mar. 21, 1989

Page 3

SEN RICHARD
TRACY

DUE DATE: 04-11-89

REPORT TO: SCALE AIR FORCE BASE
CHEM HILL/SAC
SAC 24359.FI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER-SITE 13
DATE OF SAMPLE: 03-20-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-801-8010
Extraction method: EPA 8030

REFERENCE NUMBER: SF 22761
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 03-21-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | Method
Blank | 1.0500 | | | |
|---------------------------|--------|-----------------|--------|--|--|--|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | | | |
| Chloroform | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | 30 | 30 | | | |
| Dibromochloromethane | ↓ | <1 | <1 | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | ↓ | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane SS | ↓ | 100% | 97 | | | |

4-3-89

4-3-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST

JW

AFFSIVE

F-325

COMPLETED BY

CHECKED BY *WMA*

CH2M Hill Laboratory
2212 Railroad Avenue, Redding, CA 96001

Mar. 22, 1989

Page 1

RAND: LAL-3: FRED NIVE
TRACT

DUE DATE: 04-12-89

REPORT TO: WEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24059.F1.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 13
DATE OF SAMPLE: 03-22-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-802-8020
Extraction method: EPA 8030

REFERENCE NUMBER: SP 22792
PAGE OF
DATE:
PHONE:
SAMPLED BY: PEXTON
DATE RECEIVED: 03-22-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT
LIMIT | method
Blank | 1.502 | 2.503 | 3.501 |
|----------------------------|-----------------|-----------------|--------|--------|--------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | |
| Toluene | | | | | |
| Chlorobenzene | | | | | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS: 111.1 | | 100% | 107 | 110 | 100 |
| | | 4-4-89 | 4-4-89 | 4-4-89 | 4-4-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETED BY

CHECKED BY

(Signature)

F-326

CH2M Hill Laboratory
2219 Railroad Avenue, Redding, CA 96001

Mar. 22, 1989

Page 2

SEN ~~MARK~~
TRACY

DUE DATE: 04-12-89

REPORT TO: SEALE AIR FORCE BASE

REFERENCE NUMBER: SP 22792

CH2M HILL/SAC
SAC 243-1.61.04

PAGE OF

DATE:

PHONE:

SAMPLED BY: PEXTON

DATE RECEIVED: 03-22-89

ATTENTION: DAVID FEARCE

SAMPLE DESCRIPTION: WATER SITE 17

DATE OF SAMPLE: 03-22-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-801-8010

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | detect
LIMIT | Method
Blank | 1.502 | 2.503 | 3.501 |
|---------------------------|-----------------|-----------------|--------|--------|--------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dibromochloromethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | 111 | 100% | 96 | 85 | 92 |
| | | 4-4-89 | 4-4-89 | 4-4-89 | 4-4-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST

APPROVED

F-327

COMPLETED BY

CHECKED BY

CH2M Hill Laboratory
2219 Railroad Avenue, Redding, CA 96001

Mar. 24, 1989

Page 2

BEN FICH MARYBETH BRIAN
TRACY

DUE DATE; 04-14-89

REPORT TO; SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24059.RI.04

REFERENCE NUMBER; SP 22814

PAGE OF

DATE;

PHONE;

SAMPLED BY; CLIENT

DATE RECEIVED; 03-23-89

ATTENTION; WAYNE FEARCE

SAMPLE DESCRIPTION; WATER SITE 6

DATE OF SAMPLE; 03-22-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-802-9020

() mg/l

() ug/l

() mg/kg

() ug/kg

Extraction method; EPA 5030

| | DETECT | Method | 1.0504 | | | |
|-------------------------|--------|--------|--------|--|--|--|
| | LIMIT | Blank | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | <1 | <1 | | | |
| Toluene | | | 3 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS; | | 100% | 82 | | | |
| | | 4-4-89 | 4-4-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST



APPROVED BY



COMPLETED BY _____
CHECKED BY _____

F-328

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 24, 1989

Page 2

BEN RICHARD
TRACY

DUE DATE: 04-14-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24357.RI.04

REFERENCE NUMBER: SP 22814

PAGE OF

DATE:

PHONE:

SAMPLED BY: CLIENT

DATE RECEIVED: 03-27-89

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 6
DATE OF SAMPLE: 07-22-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-801-2010

() mg/l

(✓) ug/l

() mg/kg

() ug/kg

Extraction method: EPA 5050

| | detect
LIMIT | Method
Blank | 1.0504 | | |
|---------------------------|-----------------|-----------------|--------|--|--|
| Chloromethane | <1 | <1 | <1 | | |
| Bromomethane | | | | | |
| Dichlorodifluoromethane | | | | | |
| Vinyl Chloride | | | | | |
| Chloroethane | | | | | |
| Methylene chloride | 45 | 45 | 45 | | |
| Trichlorofluoromethane | <1 | <1 | <1 | | |
| 1,1-Dichloroethene | | | | | |
| 1,1-Dichloroethane | | | | | |
| trans-1,2-Dichloroethene | | | | | |
| Chloroform | | | | | |
| 1,2-Dichloroethane | | | | | |
| 1,1,1-Trichloroethane | | | | | |
| Carbon Tetrachloride | | | | | |
| Bromodichloromethane | | | | | |
| 1,2-Dichloropropene | | | | | |
| cis-1,3-Dichloropropene | | | | | |
| Trichloroethene | | | | | |
| Dibromochloromethane | | | | | |
| 1,1,2-Trichloroethane | | | | | |
| trans-1,3-Dichloropropene | | | | | |
| Bromoform | | | | | |
| 1,1,2,2-Tetrachloroethane | | | | | |
| Tetrachloroethene | | | | | |
| Chlorobenzene | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Bromochloromethane SS | | 100% | 45 | | |
| | | 4-4-89 | 4-4-89 | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST

J.W.

APPRO: E-329

W

COMPLETED BY

Chen Hill Laboratory
2215 Salinas Avenue, Redwood, CA 94061

Mar. 24, 1989

Page 1

FAVOR LALAY FRED RICE
TRACY

MR. DATE: 04-17-89

REPORT TO: DELE AIR FLEIE PAGE

REFERENCE NUMBER: SP 22817

CHEN HILL/940

PAGE OF

SAC 24059.FI.04

DATE:

ATTENTION: WAYNE FEARCE

PHONE:

SAMPLE DESCRIPTION: WATER SITE 6

SAMPLED BY: FEXTON

DATE OF SAMPLE: 03-13-89

DATE RECEIVED: 03-24-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-802-8020

() mg/l (✓) ug/l () mg/lg () mg/kg

Extraction method: EPA 8020

| | DETECT
LIMIT | Method
Blank | 1.505 | 2.506 | 3.507 | 4.508 |
|-------------------------|-----------------|-----------------|--------|--------|--------|-------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Pentane | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 102 | 85 | 101 | 98 |
| | | 4-5-89 | 4-5-89 | 4-5-89 | 4-5-89 | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

APPROVED BY

COMPLETED BY
CHECKED BY

F-330

Mar. 24, 1989

Page: 1

ESL: MICHAEL
TRAC:

DUE DATE: 01-17-89

RE: COT TUNNELL AIR F. F. F. BASE
CH2M HILL LAB
SAC 24739.61.04
ATTENTION: WAYNE FEARCE
SAMPLE IDENTIFICATION: WATER SITE 6
DATE OF SAMPLE: 03-23-89
DATE RECEIVED:

REFERENCE NUMBER: EP 20917
PAGE OF
DATE:
PHONE:
SAMPLED BY: FEXTON
DATE RECEIVED: 03-24-89

Test Method: EPA-811-9.10
Extraction Method: EPA 8130

() mg/l (✓) ug/l () mg/l () ug/l

| | data | method | 1.505 | 2.506 | 3.507 | 4.508 |
|---------------------------|-------|--------|--------|--------|--------|--------|
| | LIMIT | Blank | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Dichlorodifluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Vinyl Chloride | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloroethane | 5 | <5 | <5 | <5 | <5 | <5 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| trans-1,2-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloroform | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,2-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Carbon Tetrachloride | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromochloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,2-Dichloropropane | 1 | <1 | <1 | <1 | <1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 | <1 |
| Trichloroethene | 1 | <1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromoform | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Tetrachloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromochloroethane SS | 1 | 100% | 124 | 98 | 120 | 130 |
| | | 4-5-89 | 4-5-89 | 4-5-89 | 4-5-89 | 4-5-89 |

CONCENTRATIONS: surrogate standard reported as percent recovery
copy to:

ANALYST: (Signature) APPROVE: (Signature)

F-331

COMPLETED BY: _____
CHECKED BY: _____
SL:

Mar. 30, 1989

Page 3

BEIRICH
TRACI

DUE DATE: 04-21-89

REPORT TO: MALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24159.41.04
ATTENTION: DAVE PEARCE
SAMPLE DESCRIPTION: WATER SITE 15
DATE OF SAMPLE: 03-29-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-800-8020
Extraction method: EPA 8030

REFERENCE NUMBER: SF 22849
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED: 03-30-89

() mg/l (✓) ug/l () ng/kg () ug/l

| DETECT LIMIT | | method 1.0510 | | | | |
|-------------------------|---|---------------|---------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100 | 107 | | | |
| | | 4-12-89 | 4-12-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST JW APPROVED BY h

COMPLETED BY _____
CHECKED BY _____

RANDY FRED MIKE JIM
TRACY

F-332

DATE: 04-21-89

Mar. 30, 1989

Page 3

PC: FICHARD
TRACI

DUE DATE: 04-21-89

REPORT TO: USAF AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 15
DATE OF SAMPLE: 03-29-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: SP 22949
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS COOLEY
DATE RECEIVED: 03-30-89

Test Methods: EPA-801-8010
Extraction method: EPA 8030

() mg/l (/) ug/l () mg/kg () ug/kg

| | detect
LIMIT | method
Blank | 1.0510 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | 5 | <5 | <5 | | | |
| Methylene chloride | 1 | <1 | <1 | | | |
| Trichlorofluoromethane | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| Chloroform | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropane | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | ↓ | ↓ | | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,3-Dichloropropane | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | ↓ | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloromethane SS | — | 100% | 122 | | | |

4-12-89

4-12-89

COMMENTS: SS-Gurrogate standard reported as percent recovery
copy to:

ANALYST

APPROVED BY

COMPLETED BY

F-333

CHECKED BY

Mar. 20, 1989

Page 1

RANDY JIM FRED NIXE
TRACY

DUE DATE: 03-21-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL PAC
SAC 04059.91.04

REFERENCE NUMBER: SP 22949

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS COALEY

DATE RECEIVED: 07-10-89

ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SILL 3
DATE OF SAMPLE: 07-10-89
DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-800-8020

() mg/l

(✓) ug/l

() mg/kg

() ug/kg

Extraction method: EPA 8000

| | DETECT LIMIT | Method Blank | 1.0511 | | | |
|-------------------------|--------------|--------------|---------|--|--|--|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | <1 | | | |
| Toluene | | | 4 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 101 | | | |
| | | 4-12-89 | 4-12-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

JW

APPROVED BY

W

COMPLETED BY

CHECKED BY

F-334

Mar. 30, 1989

Page 1

SEN RICHARD
TRAC:

USE DATE: 04-01-89

FED. 1 TOXICOLE AIR FINE CASE
CH2M HILL
SAC CALIFORNIA
ATTENTION: NAME FENCE
SAMPLE DESCRIPTION: WATER SITE 3
DATE OF SAMPLE: 03-12-89
DATE RECEIVED: 04-01-89
DATE ANALYZED: 04-12-89

REFERENCE NUMBER: 22949
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS COMLEY
DATE RECEIVED: 03-30-89

Test Method: EPA-801-8710
Extraction method: EPA 8030

() mg/l () ug/l () ug/kg () ug/g

| | detect | method | 1.0511 | | | |
|---------------------------|--------|--------|--------|--|--|--|
| | 1.111 | Blank | | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Bromoethane | 1 | 1 | 1 | | | |
| Dichlorodifluoromethane | 1 | 1 | 1 | | | |
| Vinyl Chloride | 1 | 1 | 1 | | | |
| Chloroethane | 1 | 1 | 1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| trans-1,2-Dichloroethane | 1 | 1 | 1 | | | |
| Chloroform | 1 | 1 | 1 | | | |
| 1,2-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | | | |
| Carbon Tetrachloride | 1 | 1 | 1 | | | |
| Bromodichloromethane | 1 | 1 | 1 | | | |
| 1,2-Dichloropropane | 1 | 1 | 1 | | | |
| cis-1,3-Dichloropropane | 1 | 1 | 1 | | | |
| Trichloroethane | 1 | 1 | 1 | | | |
| Dibromochloromethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| trans-1,3-Dichloropropane | 1 | 1 | 1 | | | |
| Bromoform | 1 | 1 | 1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | | | |
| Tetrachloroethane | 1 | 1 | 1 | | | |
| Chlorobenzene | 1 | 1 | 1 | | | |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | | | |
| Bromochloromethane SS | 1 | 1000 | 112 | | | |

9-12-89

4-12-89

COMMENTS: 1,3-Surrogate standard reported as percent recovery
comp to:

ANALYST: J. APPROVED BY: W

COMPLETED BY:
CHECKED BY:

F-335

Mar. 31, 1989

Page 1

SANDY JIM FERGUSON
TRACY

DUE DATE; 04-24-89

REPORT TO: REALE AIF FORCE BASE
CHEM HILL/SAC
SAC 24059.RI.04

REFERENCE NUMBER; SP 22870

PAGE OF

DATE;

PHONE;

SAMPLED BY; CHRIS CORLEY

DATE RECEIVED; 03-31-89

ATTENTION; DAINE FEARCE

SAMPLE DESCRIPTION; WATER SITE 3

DATE OF SAMPLE; 03-31-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l

() ug/l

() mg/kg

() ug/kg

Extraction method; EPA 5030

| | DETECT | Method
Blank | 1.0513 | | | |
|-------------------------|--------|-----------------|---------|--|--|--|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | <1 | <1 | | | |
| Toluene | | <1 | <1 | | | |
| Chlorobenzene | | <1 | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 102 | | | |
| | | 4-12-89 | 4-12-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

J.

APPROVED BY

m

COMPLETED BY

CHECKED BY

ny

F-336

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 31, 1989

Page 1

SEN RICHARD
TRACI

DUE DATE: 04-14-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC L4357.RI.04

REFERENCE NUMBER: SP 22870

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 03-31-89

ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE C
DATE OF SAMPLE: 03-31-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-601-8010

() mg/l (✓) ug/l () mg/l () ug/l

Extraction method: EPA 5030

| | detect
LIMIT | method
Blank | 1.0513 | | | |
|---------------------------|-----------------|-----------------|---------|--|--|--|
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | 1 | 1 | | | |
| Dichlorodifluoromethane | 1 | 1 | 1 | | | |
| Vinyl Chloride | 1 | 1 | 1 | | | |
| Chloroethane | 1 | 1 | 1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| trans-1,2-Dichloroethane | 1 | 1 | 1 | | | |
| Chloroform | 1 | 1 | 1 | | | |
| 1,2-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | | | |
| Carbon Tetrachloride | 1 | 1 | 1 | | | |
| Bromochloromethane | 1 | 1 | 1 | | | |
| 1,2-Dichloropropane | 1 | 1 | 1 | | | |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Trichloroethene | 1 | 1 | 1 | | | |
| Dibromochloromethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Bromoform | 1 | 1 | 1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | | | |
| Tetrachloroethane | 1 | 1 | 1 | | | |
| Chlorobenzene | 1 | 1 | 1 | | | |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | | | |
| Bromochloroethane SS | 1 | 100% | 105% | | | |
| | | 4-12-89 | 4-12-89 | | | |

COMMENTS: SS-Surrogate standard reported as percent recovery

* surrogate calculated by copy to:
External Standard Method

ANALYST: (J) APPROVED BY: [Signature]

COMPLETED BY: [Signature]
CHECKED BY: [Signature]

F-337

2213 Railroad Avenue, Redding, CA 96001

Mar. 31, 1989

Page 4

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.R1.04
ATTENTION: WAINE FEARCE
SAMPLE DESCRIPTION: WATER SITE 15
DATE OF SAMPLE: 03-30-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: SF 22871

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 03-31-89

Test Methods: EPA-602-8020
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT
LIMIT | method
2 | 1.0512 | 2.0514 | 3.0515 |
|-------------------------|-----------------|-------------|---------|---------|---------|
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 |
| Benzene | | | | <1 | |
| Toluene | | | | <1 | |
| Chlorobenzene | | | | <1 | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS: | | 100% | 89 | 112 | 111 |
| | | 4-12-89 | 4-12-89 | 4-12-89 | 4-12-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Jv)

APPROVED BY

for

COMPLETED BY _____
CHECKED BY _____

F-338

CHEM Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Mar. 31, 1989

Page 3

BEN RICHARD
TRACY

DUE DATE: 04-24-89

REPORT TO: BALE AIR FORCE BASE
CHEM HILL/SAC
SAC 24359.FI.C4
ATTENTION: WAINE FEARCE
SAMPLE DESCRIPTION: WATER SITE 15
DATE OF SAMPLE: 03-30-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-821-8-10
Extraction method: EPA 5030

REFERENCE NUMBER: SP 22871
PAGE OF
DATE:
PHONE:
SAMPLED BY: COFLEY
DATE RECEIVED: 03-31-89

| | detect
LIMIT | method
blank | 1.0512 | 2.0514 | 3.1115 |
|---------------------------|-----------------|-----------------|--------|--------|--------|
| Chloromethane | 1 | <1 | <1 | <1 | < |
| Bromomethane | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | < |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 |
| Bromodichloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 |
| Dibromochloroethane | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethane | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 91% | 96% | 100% |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

* CALCULATED BY EXTERNAL STANDARD METHOD

ANALYST: 5 APPROVED BY: jm

COLLECTED BY: jm
CHECKED BY: jm

F-339

Apr. 3, 1989

Page 1

SEN RICHARD
TRAC:

DUE DATE: 04-11-89

REPORT TO: DEALE AIR FORCE BASE
1017 HILL/SAC
CAC 0479, 41.01

REFERENCE NUMBER: 22890

PAGE OF

DATE:

ANALYST:

SAMPLED BY: CAPT. DITLEY

DATE RECEIVED: 04-13-89

ATTENTION: NAME PEARCE
SAMPLE DESCRIPTION: WATER SITE 3
DATE OF SAMPLE: 03-31-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-816-B-10

Extraction Method: EPA 8030

METHOD

detect BLANK 1.0518

| | detect | BLANK | 1.0518 | | | |
|---------------------------|--------|-------|--------|--|--|--|
| Chloroethane | 1 | <1 | <1 | | | |
| Bromoethane | 1 | <1 | <1 | | | |
| Dichlorodifluoromethane | 1 | <1 | <1 | | | |
| Vinyl Chloride | 1 | <1 | <1 | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| trans-1,2-Dichloroethane | 1 | <1 | <1 | | | |
| Chloroform | 1 | <1 | <1 | | | |
| 1,2-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | | | |
| Carbon Tetrachloride | 1 | <1 | <1 | | | |
| Bromodichloromethane | 1 | <1 | <1 | | | |
| 1,2-Dichloropropane | 1 | <1 | <1 | | | |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Trichloroethene | 1 | <1 | <1 | | | |
| Dibromochloromethane | 1 | <1 | <1 | | | |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | | | |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | | | |
| Bromoform | 1 | <1 | <1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | | | |
| Tetrachloroethene | 1 | <1 | <1 | | | |
| Chlorobenzene | 1 | <1 | <1 | | | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | | | |
| Bromochloromethane SS | 1 | 10090 | 97 * | | | |

4-12-89

4-13-89

COMMENTS: SS-Surrogate standard reported as percent recovery

* Surrogate calculated by copy to; External standard Method.

ANALYST

J.

APPROVED BY

h

COMPLETED BY

CHECKED BY

CH2M Hill Laboratory
2219 Railroad Avenue, Redding, CA 96001

Apr. 3, 1989

Page 2

BEN RICH AS 85194
TRAC

DUE DATE: 04-21-89

REPORT TO: PEOPLE AIR FORCE BASE
CH2M HILL/SAC
SAC 11059.01.04

REFERENCE NUMBER: SP2 22890

PAGE 02

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 04-03-89

ATTENTION: GARY PEASLE

SAMPLE DESCRIPTION: WATER SITE 7

DATE OF SAMPLE: 03-31-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-822-G-02

Extraction method: EPA 8070

| | METHOD | | | | | |
|-------------------------|--------|---------|---------|--|--|--|
| | DETECT | BLANK | 1.0513 | | | |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100% | 111 | | | |
| | | 4-12-89 | 4-13-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

RANDY FRED NINE JIM

F-341

Apr. 3, 1989

Page 2

DETAILED ANALYSIS
1540

DETAILED ANALYSIS

FOR THE 15.15% TO 15.16% RANGE

REFERENCE TO 15.15% TO 15.16% RANGE

15.15% TO 15.16%

15.15% TO 15.16%

DATE 1-1-89, 11:04

DATE 1-1-89

ANALYSIS BY: J. J. J.

ANALYSIS BY: J. J. J.

SAMPLE OF 15.15% TO 15.16% RANGE 19

SAMPLE OF 15.15% TO 15.16% RANGE

DATE OF 15.15% TO 15.16%

DATE OF 15.15% TO 15.16%

DATE EXTRACTED:

DATE ANALYZED:

Test Method: 15.15% TO 15.16%

Extraction Method: 15.15% TO 15.16%

| | detect | BLANK | 1.0517 | 2.0516 |
|---------------------------|--------|---------|---------|---------|
| | LIMIT | | | |
| Chloroethane | 1 | <1 | <1 | <1 |
| Bromoethane | 1 | <1 | <1 | <1 |
| Dichlorodifluoroethane | 1 | <1 | <1 | <1 |
| Vinyl Chloride | 1 | <1 | <1 | <1 |
| Chloroethane | 1 | <1 | <1 | <1 |
| Methylene chloride | 5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 |
| trans-1,2-Dichloroethane | 1 | <1 | <1 | <1 |
| Chloroform | 1 | <1 | <1 | <1 |
| 1,2-Dichloroethane | 1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 |
| Carbon Tetrachloride | 1 | <1 | <1 | <1 |
| Bromodichloromethane | 1 | <1 | <1 | <1 |
| 1,2-Dichloropropane | 1 | <1 | <1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | <1 |
| Trichloroethene | 1 | <1 | <1 | <1 |
| Dibromochloromethane | 1 | <1 | <1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | <1 |
| Bromofors | 1 | <1 | <1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | <1 |
| Tetrachloroethene | 1 | <1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | <1 |
| Bromochloromethane SS | 1 | 100% | 98 * | 112 * |
| | | 4-12-89 | 4-13-89 | 4-13-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery

* Surrogate calculated by External standard method.

ANALYST: J. J. J. APPROVED BY: J. J. J.

COMPLETED BY: J. J. J.

CHECKED BY: J. J. J.

CHEN Mill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Apr. 3, 1989

Page 3

TRACY

DUE DATE: 04-21-89

REPORT TO: HENRIK & SONS PAGE

1001 1111 500

1001 1111 500

ATTENTION: HENRIK & SONS

SAMPLE DESCRIPTION: WATER, SITE 19

DATE OF SAMPLE: 4-11-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-807-2020

Extraction Method: EPA 8020

REFERENCE: 1001 1111 500

1001 1111 500

DATE:

PHONE:

SAMPLED BY: CHRIS COLEY

DATE RECEIVED: 04-03-89

| | DETECT | METHOD
BLANK | 1.0517 | 1.0516 | | |
|---------------------|---------|-----------------|---------|--------|--|--|
| tert-Butyl Alcohol | <1 | <1 | <1 | <1 | | |
| Petroleum | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene | 100 | 114 | 123 | | | |
| | 4-12-89 | 4-13-89 | 4-13-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

[Signature]

APPROVED BY

[Signature]

COMPLETED BY

CHECKED BY *[Signature]*

REN RICH MS BRINN
TRACY

F-343 DUE DATE: 04-21-89

Apr. 4, 1989

CH24 Hill Laboratory
201 Full-Val Avenue, Redding, CA 96001

RE: RICHARD
THOR

E E 1172-04-21-89

REPORT TO: 36-LE AIR FORCE 2438

CH24 Hill Lab.

341 4457 1.04

A. RICHARD THOR

1.2 1172-04-21-89

DATE OF SAMPLE COLLECTION

DATE RECEIVED

DATE RECEIVED

DATE RECEIVED

DATE RECEIVED

REFERENCE NUMBER: 1172-06 9

PAGE 17

DATE:

DATE:

DATE:

DATE RECEIVED: 4-14-89

| | 1.0519 | 2.0520 | 3.0521 | 4.0521 |
|---------------------------|---------|---------|---------|---------|
| Isobutylene | <1 | <1 | <1 | <1 |
| Acetylene | <1 | <1 | <1 | <1 |
| Trichlorofluoromethane | <1 | <1 | <1 | <1 |
| Vinyl Chloride | <1 | <1 | <1 | <1 |
| Chloroethene | <1 | <1 | <1 | <1 |
| Methylene Chloride | 5 | 5 | 5 | 5 |
| Trichlorofluoromethane | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | | | | |
| trans-1,2-Dichloroethane | | | | |
| Chloroform | | | | |
| 1,2-Dichloroethane | | | | |
| 1,1,1-Trichloroethane | | | | |
| Carbon Tetrachloride | | | | |
| Bromodichloromethane | | | | |
| 1,2-Dichloropropane | | | | |
| cis-1,3-Dichloropropene | | | | |
| Trichloroethene | | | | |
| Dibromochloromethane | | | | |
| 1,1,2-Trichloroethane | | | | |
| trans-1,3-Dichloropropene | | | | |
| Bromoform | | | | |
| 1,1,2,2-Tetrachloroethane | | | | |
| Tetrachloroethene | | | | |
| Chlorobenzene | | | | |
| 1,3-Dichlorobenzene | | | | |
| 1,2-Dichlorobenzene | | | | |
| 1,4-Dichlorobenzene | | | | |
| Bromochloromethane SS | 100% | 99 | 101 | 120 |
| | 4-14-89 | 4-14-89 | 4-14-89 | 4-14-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery/
cop/ to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

P22

F-344

544

NSA/CSS: 1-24-78

REF ID: A66072 22304 2

PAGE 34

2000

448

53557 11 2345.

DATE RECEIVED: 5-24-82

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

241 ✓ 11 11 1942 11112

100-443892-100-443893

SS- Surrogate Standard reported as percent recovery

COMMENTS:

```
copy to;
```

ANALYST (T.W.) APPROVED BY IN

COMPLETED BY _____
CHECKED BY _____

Apr. 5, 1989

Page 3

GEN: 8104890
TITLE:

FILE: 8104890

PERFORM: 8104890

PERFORM: 8104890

DATE: 4/5/89

DATE: 4/5/89

BY: 8104890

BY: 8104890

APPROVED: 8104890

APPROVED: 8104890

SAMPLE DESCRIPTION: WATER SITE 11

SAMPLE NO: 8104890

DATE OF SAMPLE: 4-1-89

DATE RECEIVED: 4-5-89

DATE EXTRACTED:

DATE ANALYZED:

TEST METHOD: EPA 8104890

TEST METHOD: EPA 8104890

EXTRACTION METHOD: EPA 8104890

| | detect | method | 1.0525 |
|---------------------------|--------|--------|--------|
| | LIMIT | Blank | |
| Isobutene | 1 | <1 | <1 |
| Bromobutene | 1 | <1 | <1 |
| Dichlorodifluoromethane | 1 | <1 | <1 |
| Vinyl Chloride | 1 | <1 | <1 |
| Chloroethane | 1 | <1 | <1 |
| Methylene chloride | 5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 | <1 |
| Chloroform | 1 | <1 | <1 |
| 1,2-Dichloroethane | 1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | <1 |
| Carbon Tetrachloride | 1 | <1 | <1 |
| Bromodichloromethane | 1 | <1 | <1 |
| 1,2-Dichloropropane | 1 | <1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | <1 |
| Trichloroethene | 1 | <1 | <1 |
| Dibromochloromethane | 1 | <1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | <1 |
| Bromoform | 1 | <1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 |
| Tetrachloroethene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Bromochloromethane 35 | 1 | 100% | 130 |

4-18-89

4-18-89

COMMENT: 35-Surrogate standard reported as percent recovery
copy to:

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETED BY

CHECKED BY

F-346

Apr. 5, 1989

Page 1

REPORT TO: REALE AIR FORCE BASE
CAMP HILL, CA
SAC 24357.11.04
ATTENTION: WASTE SITE
SAMPLE LOCATION: WATER SITE 11
DATE OF SAMPLE: 12-14-87
DATE EXTRACTED:
DATE ANALYZED:
Test Method: EPA 8210
Extraction Method: EPA 8130

REFERENCE: CIRCULAR 20014
DATE OF
DATE:
PHONE:
SAMPLED BY: CLIENT
DATE RECEIVED: 04-03-89

| | DETECT | 8.148 | 1.012 | | | |
|-------------------------|--------|---------|---------|--|--|--|
| tert-butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | <1 | | | |
| Toluene | | | 1 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 128 | | | |
| | | 4-18-89 | 4-18-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST J.W. APPROVED BY W

COMPLETED BY _____
CHECKED BY _____

May 30, 1989

Page 2

BEN RICH MB BRIAN
TRACY

DUE DATE:06-19-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 15
DATE OF SAMPLE:
DATE EXTRACTED:
DATE ANALYZED :

REFERENCE NUMBER:SP 23325
PAGE OF
DATE:
PHONE:
SAMPLED BY: ELLIOT
DATE RECEIVED:05-30-89

Test Methods: EPA-601-8010
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0550 | 2.0551' | 3.0552 | 4.0553 |
|---------------------------|--------|-----------------|----------------|----------------|---------------|----------------|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dibromochloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethan | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | — | 100%
6-5-89 | 100%
6-5-89 | 105%
6-5-89 | 99%
6-6-89 | 103%
6-6-89 |

COMMENTS:SS-Surrogate standard reported as percent recovery
copy to;

ANALYST JW APPROVED BY hr

COMPLETED BY MS
CHECKED BY _____
P22

F-348

6/1/89

May 30, 1989

Page 2

BEN RICH MB BRIAN
TRACY

DUE DATE: 06-19-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 15
DATE OF SAMPLE:
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: SP 23325
PAGE OF
DATE:
PHONE:
SAMPLED BY: ELLIOT
DATE RECEIVED: 05-30-89

Test Methods: EPA-602-8020
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT | METHOD | 1.0550 | 2.0551 | 3.0552 | 4.0553 |
|-------------------------|--------|--------|--------|--------|--------|--------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | <1 | <1 | <1 | <1 | <1 |
| Toluene | | | 1 | 1 | 2 | 1 |
| Chlorobenzene | | <1 | <1 | <1 | <1 | <1 |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trifluorotoluene SS | — | 100% | 95% | 90% | 89 | 96 |
| | | 6-5-89 | 6-5-89 | 6-5-89 | 6-6-89 | 6-6-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

(J.W.)

APPROVED BY

[Signature]

COMPLETED BY _____
CHECKED BY _____

Jun. 1. 1989

Page 2

LAWRY BEN BRAIN MB RICH
TRACY

DUE DATE:06-19-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER:SP 23357

PAGE OF

DATE;

PHONE;

SAMPLED BY: KROOK

DATE RECEIVED:05-31-89

ATTENTION:WAYNE PEARCE

SAMPLE DESCRIPTION:WATER-SITE1

DATE OF SAMPLE:05-30-89

DATE EXTRACTED:

DATE ANALYZED :

Test Methods: EPA-601-8010

() mg/l

(4) ug/l

() mg/kg

() ug/kg

Extraction method: EPA 5030

| | detect | METHOD
BLANK | 1.0556 | | | |
|---------------------------|--------|-----------------|--------|--|--|--|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | 1 | 1 | | | |
| Dichlorodifluoromethane | 1 | 1 | 1 | | | |
| Vinyl Chloride | 1 | 1 | 1 | | | |
| Chloroethane | 1 | 1 | 1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | 1 | 1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | | | |
| Chloroform | 1 | 1 | 1 | | | |
| 1,2-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | | | |
| Carbon Tetrachloride | 1 | 1 | 1 | | | |
| Bromodichloromethane | 1 | 1 | 1 | | | |
| 1,2-Dichloropropane | 1 | 1 | 1 | | | |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Trichloroethene | 1 | 1 | 1 | | | |
| Dibromochloromethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Bromoform | 1 | 1 | 1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | | | |
| Tetrachloroethene | 1 | 1 | 1 | | | |
| Chlorobenzene | 1 | 1 | 1 | | | |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | | | |
| Bromochloromethane SS | 1 | 100% | 94 | | | |

6-13-89

6-13-89

COMMENTS:SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

Ju

APPROVED BY

W

COMPLETED BY

CHECKED BY

WJ

F-350

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 1, 1989

Page 1

LAWRY FRED RANDY BJ JIM
TRACY

DUE DATE: 06-19-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-SITE1
DATE OF SAMPLE: 05-30-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER: SP 23357
PAGE OF
DATE:
PHONE:
SAMPLED BY: KROOK
DATE RECEIVED: 05-31-89

| | METHOD | | | | | |
|-------------------------|--------|---------|---------|--|--|--|
| | DETECT | BLANK | 1.0556 | | | |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylene | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | — | 100% | 95 | | | |
| | | 6-13-89 | 6-13-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST (J.W.) APPROVED BY [Signature]

COMPLETED BY [Signature]
CHECKED BY [Signature]

F-351

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 1, 1989

Page 4

LAWRY RICH ME BRAIN BEN
TRACY

DUE DATE: 06-19-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-BACKGROUND
DATE OF SAMPLE: 05-30-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: SP 23358
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 05-31-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0555 | 2.0554 | | |
|---------------------------|--------|-----------------|---------|---------|--|--|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | <1 | | |
| Bromomethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | | | | | |
| Methylene chloride | 5 | <5 | <5 | <5 | | |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethene | ↓ | | | | | |
| 1,1-Dichloroethane | ↓ | | | | | |
| trans-1,2-Dichloroethene | ↓ | | | | | |
| Chloroform | ↓ | | | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloroethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | | | | |
| Dibromochloroethane | ↓ | | | | | |
| 1,1,2-Trichloropethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Bromochloromethane SS | ↓ | 100% | 104% | 104% | | |
| | | 6-13-89 | 6-13-89 | 6-13-89 | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST J.W. APPROVED BY [Signature]

COMPLETED BY [Signature]
CHECKED BY [Signature]

F-352

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 1, 1989

Page 2

LAWRY RICH MB BRAIN BEN
IRACY

DUE DATE: 06-19-89

REPORT TO: BEALE AIP FORCE BASE
CH2M HILL/SAC
SAC 24059.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER-BACKGROUND
DATE OF SAMPLE: 05-30-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER: SP 23358
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 05-31-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT | METHOD
BLANK | 1.0555 | 2.0554 | | |
|-------------------------|--------|-----------------|---------|---------|--|--|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | | |
| benzene | | | <1 | | | |
| toluene | | | 2 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 81% | 123 | | |
| | | 6-13-89 | 6-13-89 | 6-13-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST




APPROVED BY



COMPLETED BY

CHECKED BY



F-353

TRACY

DUE DATE;

REPORT TO; BEALE AIR FORCE BASE

REFERENCE NUMBER; 23358

PAGE OF

ATTENTION;

DATE;

SAMPLE DESCRIPTION;

PHONE;

DATE OF SAMPLE;

SAMPLED BY;

DATE EXTRACTED;

DATE RECEIVED;

DATE ANALYZED;

Test Methods; EPA-602-8020

() mg/l () ug/l () mg/kg () ug/kg

Extraction method; EPA 5030

DETECT
LIMIT

tert-Butyl Methyl Ether

Benzene

Toluene

Chlorobenzene

Ethyl benzene

Total Xylenes

1,3-Dichlorobenzene

1,2-Dichlorobenzene

1,4-Dichlorobenzene

Trifluorotoluene SS

Blank 1.0555

2.0555

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

blank

TRACY

DUE DATE;

REPORT TO; BEALE AIR FORCE BASE

F-354 RENCE NUMBER;

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 1. 1989

Page 2

BEN RICH MR BRIAN
TRACY

DUE DATE:06-20-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER:S 23372

PAGE OF

DATE:

PHONE:

SAMPLED BY: CLIENT

DATE RECEIVED:06-01-89

ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 1
DATE OF SAMPLE:05-31-89
DATE EXTRACTED:

DATE ANALYZED :

Test Methods: EPA-601-8010

()mg/l (✓)ug/l () mg/kg ()ug/kg

Extraction method: EPA 5030

| | detect | METHOD
BLANK | 1.0557 | 2.0558 | 3.0559 | 4.0560 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 66 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | <1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 14 | 3 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | <1 | <1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 108% | 116% | 126% | 1 |
| | | 6-13-89 | 6-13-89 | 6-13-89 | 6-13-89 | 6-14-89 |

COMMENTS:SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

JW

APPROVED BY

h

COMPLETED BY

CHECKED BY

P22

F-355

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 1, 1989

Page 2

BEN RICH MR BRIAN
TRACY

DUE DATE: 06-20-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 05-31-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER: S 23372
PAGE OF
DATE:
PHONE:
SAMPLED BY: CLIENT
DATE RECEIVED: 06-01-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT | METHOD
BLANK | 1.0557 | 2.0558 | 3.0559 | 4.0560 |
|-------------------------|--------|-----------------|---------|---------|---------|---------------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | <1 | | |
| Toluene | | | | 2 | | |
| Chlorobenzene | | | | <1 | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trifluorotoluene SS: | — | 100% | 89% | 86% | 86% | 86% |
| | | 6-13-89 | 6-13-89 | 6-13-89 | 6-13-89 | 6-13-89
14 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST JW APPROVED BY [Signature]

COMPLETED BY _____
CHECKED BY _____

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 2, 1989

Page 1

LAWRY MB RICH BEN BRAIN
TRACY

DUE DATE: 06-02-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE -
SAMPLE DESCRIPTION: WATER SITE 13
DATE OF SAMPLE: 06-01-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: S 23375
PAGE OF
DATE:
PHONE:
SAMPLED BY: CLIENT
DATE RECEIVED: 06-02-89

Test Methods: EPA-601-8010
Extraction method: EPA 5030

() mg/l (/) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0561 | 2.0562 | 3.0563 | 4.0564 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | 4 |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | <1 |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | 37 | 8 | 11 | 69 |
| Dibromochloromethane | ↓ | ↓ | <1 | <1 | <1 | 21 |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | 2 |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | <1 | ↓ | ↓ | <1 |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | — | 100% | 92% | 97% | 109% | 100% |
| | | 6-14-89 | 6-14-89 | 6-14-89 | 6-14-89 | 6-14-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED

F-357

COMPLETED BY

CHECKED BY

FCC

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 2, 1989

Page 1

LAWRY MB RICH BEN BRAIN
TRACY

DUE DATE: 06-02-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 13
DATE OF SAMPLE: 06-01-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER: S 23375
PAGE OF
DATE:
PHONE:
SAMPLED BY: CLIENT
DATE RECEIVED: 06-02-89

| | DETECT | METHOD
BLANK | 1.0561 | 2.0562 | 3.0563 | 4.0564 |
|-------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | | 100% | 100% | 100% | 108% | 98% |
| | | 6-14-89 | 6-14-89 | 6-14-89 | 6-14-89 | 6-14-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

J.W.

APPROVED BY

lv

COMPLETED BY

CHECKED BY

F-358

Jun. 5. 1989

Page 2

BEN RICH MR BRIAN
TRACY

DUE DATE;06-23-89

REPORT TO:REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE FEARCE
SAMPLE DESCRIPTION:WATER SITE 13
DATE OF SAMPLE:06-02-89
DATE EXTRACTED:
DATE ANALYZED :
Test Methods: EPA-601-8010
Extraction method; EPA 5030

REFERENCE NUMBER;S 23397
PAGE OF
DATE;
PHONE;
SAMPLED BY; CLIENT
DATE RECEIVED;06-05-89

| | detect | METHOD
BLANK | 1.0568 | 2.0570 | 3.0567 | 4.0569 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 80 | 94 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 3 | 3 |
| 1,2-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbo- Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 880 | 1000 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 21 | 21 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromotorm | 1 | 1 | <1 | <1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethan | 1 | 1 | 16 | 16 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | <1 | <1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 101% | 102% | 100% | 108% |
| | | 6-15-89 | 6-15-89 | 6-15-89 | 6-15-89 | 6-15-89 |

COMMENTS;SS-Surrogate standard reported as percent recovery
copy to;

ANALYST _____ APPROVED BY nm

COMPLETED BY MJ

F-359

CHECKED BY _____

F22

Jun. 5, 1989

Page 2

BEN RICH MB BRIAN
TRACY

DUE DATE:06-23-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 13
DATE OF SAMPLE:06-02-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER;S 23397
PAGE OF
DATE;
PHONE;
SAMPLED BY; CLIENT
DATE RECEIVED;06-05-89

| | DETECT | METHOD
BLANK | 1.0568 | 2.0570 | 3.0567 | 4.0569 |
|-------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | <1 | <1 | <1 | <1 |
| Toluene | | | 20 | 4 | 2 | 2 |
| Chlorobenzene | | | <1 | <1 | <1 | <1 |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | — | 100% | 99% | 101% | 103% | 102% |
| | | 6-15-89 | 6-15-89 | 6-15-89 | 6-15-89 | 6-15-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST _____ APPROVED BY

COMPLETED BY
CHECKED BY

F-360

LAWRY FRED RANDY BJ JIM

Jun. 5. 1989

Page 4

BEN RICH MR BRIAN
TRACY

DUE DATE:06-23-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 2
DATE OF SAMPLE:06-02-89
DATE EXTRACTED:
DATE ANALYZED :
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: 23398
PAGE OF
DATE;
PHONE;
SAMPLED BY; CLIENT
DATE RECEIVED:06-05-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.TBLANK | 2.0571 | | |
|---------------------------|--------|-----------------|----------|---------|------|--|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | <1 | | |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | | |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Methylene chloride | 5 | <5 | <5 | <5 | | |
| Trichlorofluoromethane | ↓ | <1 | 5 | <1 | | |
| 1,1-Dichloroethene | ↓ | ↓ | 4 | ↓ | | |
| 1,1-Dichloroethane | ↓ | ↓ | 5 | ↓ | | |
| trans-1,2-Dichloroethene | ↓ | ↓ | <1 | ↓ | | |
| Chloroform | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | <1 | ↓ | | |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | | |
| Bromoform | ↓ | ↓ | ↓ | ↓ | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | | |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | | |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| Bromochloromethane SS | — | 100% | 131% | 99% | 132% | |
| | | 6-14-89 | 6-14-89 | 6-14-89 | | |

COMMENTS:SS-Surrogate standard reported as percent recovery
copy to;

ANALYST TR APPROVED BY W
COMPLETED BY TR
CHECKED BY TR

F-361

Jun. 5, 1989

Page 3

TRACY

DUE DATE:06-23-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER:S 23398

PAGE OF

DATE;

PHONE;

SAMPLED BY: CLIENT

DATE RECEIVED:06-05-89

ATTENTION:WAYNE PEARCE

SAMPLE DESCRIPTION:WATER SITE 2

DATE OF SAMPLE:06-02-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

()mg/l

(✓)ug/l

() mg/kg

()ug/kg

Extraction method; EPA 5030

| | METHOD | | | | | |
|-------------------------|--------|---------|----------|---------|--|--|
| | DETECT | BLANK | 1.TBLANK | 2.0571 | | |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | | |
| Benzene | | | | <1 | | |
| Toluene | | | | 3 | | |
| Chlorobenzene | | | | <1 | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | — | 100% | 122% | 119% | | |
| | | 6-14-89 | 6-14-89 | 6-14-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

[Signature]

APPROVED BY

COMPLETED BY

[Signature]

CHECKED BY

BEN RICH MR BRIAN
TRACY

F-362

DATE:06-23-89

Jun. 6, 1989

Page 4

BEN RICH MB BRIAN
TRACY

DUE DATE:06-23-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 1
DATE OF SAMPLE:06-05-89
DATE EXTRACTED:
DATE ANALYZED :

REFERENCE NUMBER;S 23417
PAGE OF .
DATE:
PHONE:
SAMPLED BY; JONES
DATE RECEIVED;06-06-89

Test Methods: EPA-601-8010
Extraction method: EPA 5030

()mg/l ()ug/l () ng/kg ()ug/kg

| | detect
LIMIT | METHOD
BLANK | 1.0576 | | | |
|---------------------------|-----------------|-----------------|--------|--|--|--|
| Chloromethane | ↓ | <1 | <1 | | | |
| Bromomethane | ↓ | | | | | |
| Dichlorodifluoromethane | ↓ | | | | | |
| Vinyl Chloride | ↓ | | | | | |
| Chloroethane | ↓ | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | ↓ | <1 | <1 | | | |
| 1,1-Dichloroethene | ↓ | | <1 | | | |
| 1,1-Dichloroethane | ↓ | | 0.8<1 | | | |
| trans-1,2-Dichloroethene | ↓ | | 8 | | | |
| Chloroform | ↓ | | <1 | | | |
| 1,2-Dichloroethane | ↓ | | | | | |
| 1,1,1-Trichloroethane | ↓ | | | | | |
| Carbon Tetrachloride | ↓ | | | | | |
| Bromodichloromethane | ↓ | | | | | |
| 1,2-Dichloropropane | ↓ | | | | | |
| cis-1,3-Dichloropropene | ↓ | | | | | |
| Trichloroethene | ↓ | | 4 | | | |
| Dibromochloromethane | ↓ | | <1 | | | |
| 1,1,2-Trichloroethane | ↓ | | | | | |
| trans-1,3-Dichloropropene | ↓ | | | | | |
| Bromoform | ↓ | | | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | | | | | |
| Tetrachloroethene | ↓ | | | | | |
| Chlorobenzene | ↓ | | | | | |
| 1,3-Dichlorobenzene | ↓ | | | | | |
| 1,2-Dichlorobenzene | ↓ | | | | | |
| 1,4-Dichlorobenzene | ↓ | | | | | |
| Bromochloromethane SS | ↓ | 100% | 90% | | | |

COMMENTS;SS-Surrogate standard reported as percent recovery
copy to;

ANALYST J. Rich APPROVED BY [Signature]

COMPLETED BY _____
CHECKED BY _____

F-363

Jun. 6, 1989

Page 4

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 06-05-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-6020
Extraction method: EPA 5030

REFERENCE NUMBER: S 23417
PAGE OF
DATE:
PHONE:
SAMPLED BY: JONES
DATE RECEIVED: 06-06-89

| | DETECT | METHOD
BLANK | 1.0576 | | | |
|-------------------------|--------|-----------------|--------|------|--|--|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | <1 | <1 | <1 | | | |
| Benzene | | | <1 | | | |
| Toluene | | | 2 | <1 * | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | — | 100% | 90% | | | |

* Second column confirmation by GC/MS
6/16/89
Jm

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST Jm APPROVED BY M

COMPLETED BY _____
CHECKED BY _____

Jun. 6, 1989

Page 3

BEN RICH MB BRIAN
TRACY

DUE DATE;06-23-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER;S 23418

PAGE OF

DATE;

PHONE;

SAMPLED BY; KROOK

DATE RECEIVED;06-06-89

ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER SITE 2
DATE OF SAMPLE;06-05-89
DATE EXTRACTED;

DATE ANALYZED :

Test Methods; EPA-601-8010

()mg/l (✓)ug/l () mg/kg ()ug/kg

Extraction method; EPA 5030

| | detect | METHOD
BLANK | 1.0572 | 2.0573 | 3.0574 | 4.0575 |
|---------------------------|--------|-----------------|--------|--------|--------|--------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 3 | 3 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100% | 100% | 104% | 125% | 118% |

6-19-89

6-19-89

6-19-89

6-19-89

6-19-89

COMMENTS;SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

P22

F-365

Jun. 6, 1989

Page 3

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

TRACY

DUE DATE;06-23-89

REPORT TO;BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER;S 23418

PAGE OF

DATE;

PHONE;

SAMPLED BY; KROOK

DATE RECEIVED;06-06-89

ATTENTION;WAYNE PEARCE
SAMPLE DESCRIPTION;WATER SITE 2

DATE OF SAMPLE;06-05-89

DATE EXTRACTED;

DATE ANALYZED;

Test Methods; EPA-602-8020

Extraction method; EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

| | DETECT
LIMIT | METHOD | | | | |
|-------------------------|-----------------|---------|---------|---------|---------|---------|
| | | BLANK | 1.0572 | 2.0573 | 3.0574 | 4.0575 |
| tert-Butyl Methyl Ether | | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | | | <1 |
| Toluene | | | | | | 6 |
| Chlorobenzene | | | | | | <1 |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 102% | 103% | 108% | 110% |
| | | 6-19-89 | 6-19-89 | 6-19-89 | 6-19-89 | 6-19-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS;

copy to;

ANALYST

APPROVED BY

COMPLETED BY

CHECKED BY

BEN RICH MB BRIAN
TRACY

7-366

DATE;06-23-89

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

June 5, 1989

Page 4

BEN RICH MR. P. 14N
TRAC

DUE DATE: 06-27-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 16
DATE OF SAMPLE: 06-07-89
DATE EXTRACTED:
DATE ANALYZED:
Test Method: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: S 23442
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-08-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.ACC 0577 | 2.0577 | | |
|---------------------------|--------|-----------------|------------|---------|--|--|
| | LIMIT | | | | | |
| Chloromethane | <1 | <1 | <1 | <1 | | |
| Bromomethane | <1 | <1 | <1 | <1 | | |
| Dichlorodifluoromethane | <1 | <1 | <1 | <1 | | |
| Vinyl Chloride | <1 | <1 | <1 | <1 | | |
| Chloroethane | <1 | <1 | <1 | <1 | | |
| Methylene chloride | 5 | <5 | <5 | <5 | | |
| Trichlorofluoromethane | <1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | <1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | <1 | <1 | <1 | <1 | | |
| trans-1,2-Dichloroethane | <1 | <1 | <1 | <1 | | |
| Chloroform | <1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | <1 | <1 | <1 | <1 | | |
| 1,1,1-Trichloroethane | <1 | <1 | <1 | <1 | | |
| Carbon Tetrachloride | <1 | <1 | <1 | <1 | | |
| Bromochloromethane | <1 | <1 | <1 | <1 | | |
| 1,2-Dichloropropane | <1 | <1 | <1 | <1 | | |
| cis-1,3-Dichloropropene | <1 | <1 | <1 | <1 | | |
| Trichloroethene | <1 | <1 | <1 | <1 | | |
| Dibromochloromethane | <1 | <1 | <1 | <1 | | |
| 1,1,2-Trichloroethane | <1 | <1 | <1 | <1 | | |
| trans-1,3-Dichloropropene | <1 | <1 | <1 | <1 | | |
| Bromotoluene | <1 | <1 | <1 | <1 | | |
| 1,1,2,2-Tetrachloroethane | <1 | <1 | <1 | <1 | | |
| Tetrachloroethene | <1 | <1 | <1 | <1 | | |
| Chlorobenzene | <1 | <1 | <1 | <1 | | |
| 1,3-Dichlorobenzene | <1 | <1 | <1 | <1 | | |
| 1,2-Dichlorobenzene | <1 | <1 | <1 | <1 | | |
| 1,4-Dichlorobenzene | <1 | <1 | <1 | <1 | | |
| Bromochloromethane SS | <1 | 100% | 98% | 101% | | |
| | | 6-2-89 | 6-21-89 | 6-21-89 | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETION

DATE

F-367

CALIFORNIA HILL LABORATORY
2218 Fairchild Avenue, Redding, CA 96001

JUL 9, 1989

Page 3

TRAC:

DUE DATE: 06-27-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: S 23442

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 06-06-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 16

DATE OF SAMPLE: 06-07-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-801-8020

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 8030

| | DETECT | METHOD
BLANK | 1.ACC 0577 | 2.0577 | | |
|-------------------------|--------|-----------------|------------|---------|--|--|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS: | — | 100% | 95% | 96% | | |
| | | 6-21-89 | 6-21-89 | 6-21-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

SW

APPROVED BY

W

COMPLETED BY

CHECKED BY

RE: FISH AT REALE

F-368

DATE: 06-27-89

CH2M HILL LABORATORY
2213 Ballinger Avenue, Reading, PA 19601

Jun 9, 1989

Page 2

RECEIVED BY BRIAN
TRAC

DUE DATE: 06-27-89

REPORT TO: USAF AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 10
DATE OF SAMPLE: 06-07-89
DATE EXTRACTED:
DATE ANALYZED:
Test Method: EPA-801-8010
Extraction Method: EPA 8030

REFERENCE NUMBER: 23443
PAGE OF
DATE:
PHONE:
SAMPLED BY: corley
DATE RECEIVED: 06-08-89

() mg/l () ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.ACC 0578 | 2.0578 | 3.0579 |
|---------------------------|--------|-----------------|------------|---------|---------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | <1 | <1 | <1 | <1 |
| Dichlorodifluoromethane | 1 | <1 | <1 | <1 | <1 |
| Vinyl Chloride | 1 | <1 | <1 | <1 | <1 |
| Chloroethane | 1 | <1 | <1 | <1 | <1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 | <1 | <1 | <1 |
| Chloroform | 1 | <1 | <1 | <1 | <1 |
| 1,2-Dichloroethane | 1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 | <1 |
| Carbon Tetrachloride | 1 | <1 | <1 | <1 | <1 |
| Bromodichloromethane | 1 | <1 | <1 | <1 | <1 |
| 1,2-Dichloropropane | 1 | <1 | <1 | <1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 |
| Trichloroethene | 1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | 1 | <1 | <1 | <1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | <1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 |
| Bromoforn | 1 | <1 | <1 | <1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | <1 | <1 |
| Tetrachloroethene | 1 | <1 | <1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 |
| Bromochloromethane SS | — | 100% | 114% | 102% | 111% |
| | | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy 11:

ANALYST: (JW) APPROVED BY: (W)

COMPLETED BY:
CHECKED BY:

F-369

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 8. 1989

Page 2

BEN RICH MB PFIAN
TRAC:

DUE DATE:06-27-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 19
DATE OF SAMPLE:06-07-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-802-8020
Extraction method: EPA 5030

REFERENCE NUMBER:s 23443
PAGE OF
DATE:
PHONE:
SAMPLED BY: corley
DATE RECEIVED:06-08-89

() mg/l (☒) ug/l () ng/kg () ug/kg

| | METHOD | | | | |
|-------------------------|--------|---------|------------|---------|---------|
| | DETECT | BLANK | 1.ACC 0578 | 2.0578 | 3.0579 |
| | LIMIT | | | | |
| tert-Butyl Methyl Ether | <1 | <1 | <1 | <1 | |
| Benzene | <1 | <1 | <1 | <1 | |
| Toluene | | | 8 | 2 | |
| Chlorobenzene | <1 | <1 | <1 | <1 | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS: | — | 100% | 102% | 94100% | 99% |
| | | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST JW APPROVED BY W

COMPLETED BY _____
CHECKED BY _____

F-370

Hand turned to: 100% recovery

CH2M Hill Lab - Dry
2219 Railroad Avenue, Felling, CA 95011

June 9, 1989

Page 2

BEN RICH
TRACY

DUE DATE: 06-28-89

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 19
DATE OF SAMPLE: 06-08-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: S 2345
PAGE OF
DATE:
PHONE:
SAMPLED BY: KROOK
DATE RECEIVED: 06-09-89

() mg/l (✓) ug/l () mg/l () ug/kg

| | detect | METHOD
BLANK | 1.0580 | 2.0581 | 3.0582 | 4.0583 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | 13 | 10 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 3 | 3 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | - | 100% | 107% | 108% | 98% | 97% |
| | | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

(50)

APPROVED BY

[Signature]

COMPLETED BY

CHECKED BY

F22

F-371

Jun. 21 1989

Page 2

BEN PICH MS ESKHN
TRACY

DUE DATE: 06-28-89

REPORT TO: DEALE AIR FORCE BASE
CHCH HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 17
DATE OF SAMPLE: 06-09-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-802-8020 () mg/l (✓) mg/l () mg/kg () mg/l;
Extraction method: EPA 5030

REFERENCE NUMBER: 3 23464
PAGE OF
DATE:
PHONE:
SAMPLED BY: KFOOK
DATE RECEIVED: 06-07-89

| | DETECT | METHOD | | | | |
|-------------------------|--------|---------|---------|---------|---------|---------|
| | | BLANK | 1.0580 | 2.0581 | 3.0582 | 4.0583 |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | | <1 | <1 | <1 |
| Toluene | | | | 4 | 7 | 8 |
| Chlorobenzene | | | | <1 | <1 | <1 |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | | 100% | 100% | 88% | 113% | 117% |
| | | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 | 6-21-89 |

SG- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

JS

APPROVED BY

W

COMPLETED BY: _____
CHECKED BY: _____

June 11, 1989

Page 6

SEM FAC- HP BAIHN
TR-04

DUE DATE: 06-30-90

REPORT TO: REALE AIR FORCE BASE
ONION HILL, SAC
SAC 04059.RI.04

REFERENCE NUMBER: 8 13462

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 06-12-89

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 6
DATE OF SAMPLE: 06-09-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-801-8910

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | detect | METHOD
BLANK | 1.0525 | | | |
|---------------------------|--------|-----------------|---------|--|--|--|
| | LIMIT | | | | | |
| Chloroform | ↓ | <1 | <1 | | | |
| Bromochloroform | ↓ | ↓ | ↓ | | | |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | | | |
| Vinyl Chloride | ↓ | ↓ | ↓ | | | |
| Chloroethane | ↓ | ↓ | ↓ | | | |
| Methylene chloride | 5 | <5 | 6 | | | |
| Trichlorofluoromethane | 1 | <1 | 1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | <1 | | | |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | | | |
| Chloroform | ↓ | ↓ | <1 | | | |
| 1,1-Dichloroethene | ↓ | ↓ | <1 | | | |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | | | |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | | | |
| Bromodichloromethane | ↓ | ↓ | ↓ | | | |
| 1,1-Dichloropropane | ↓ | ↓ | ↓ | | | |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Trichloroethene | ↓ | ↓ | ↓ | | | |
| Dibromochloromethane | ↓ | ↓ | ↓ | | | |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | | | |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | | | |
| Bromoform | ↓ | ↓ | ↓ | | | |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Tetrachloroethane | ↓ | ↓ | ↓ | | | |
| Chlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | | | |
| Bromochloroethane 55 | ↓ | 100% | 93% | | | |
| | | 6-23-89 | 6-23-89 | | | |

REMARKS: 55- Surrogate standard reported as percent recovery
copy to:

(Signature)

APPROVED BY

(Signature)

F-373

June 12, 1989

Page 7

REPORT TO: REALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24059.F1.04
ATTENTION: WAYNE FEARCE
SAMPLE DESCRIPTION: WATER SITE 5
DATE OF SAMPLE: 06-09-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: S 23466
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-12-89

Test Methods: EPA-802-8020 () ug/l (✓) ug/l () ug/kg () ug/kg
Extraction method: EPA 8030

| | METHOD | | | | | |
|-------------------------|--------|---------|---------|--|--|--|
| | DETECT | BLANK | 1.5585 | | | |
| tert-butyl methyl ether | | | | | | |
| Benzene | | <1 | <1 | | | |
| Toluene | | | <1 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS1 | | 100% | 94% | | | |
| | | 6-23-89 | 6-23-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST JW APPROVED BY h

COMPLETED BY _____
CHECKED BY _____

BEN RICH MB BRIAN
TRACY

REPORT TO: REALE AIR FORCE BASE

F-374

DATE: 06-20-89

REFERENCE NUMBER: S 23466

June 12, 1989

Page 4

BERKLEY, CA 94701
TRAC

DUE DATE: 06-10-89

REPORT TO: NEAL AIR FOR & BASE

REFERENCE NUMBER: S 23469

CH2M HILL TRAC
SAT 14054, R1.00

PAGE OF

DATE:

PHONE:

ATTENTION: UPRITE REAROC

SAMPLE DESCRIPTION: WATER SITE

SAMPLED BY: KROOK

DATE OF SAMPLE: 01-07-89

DATE RECEIVED: 06-12-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA 801, 8014

1 mg/l 100% 100% 100% 100%

Extraction method: EPA 8030

| | detect | BLANK | 1.0586 | | | |
|---------------------------|--------|-------|--------|--|--|--|
| | LIMIT | | | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | <1 | <1 | | | |
| Dichlorodifluoromethane | 1 | <1 | <1 | | | |
| Vinyl Chloride | 1 | <1 | <1 | | | |
| Chloroethane | 1 | <1 | <1 | | | |
| Methylene chloride | 5 | <5 | 9 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | | | |
| trans-1,2-Dichloroethane | 1 | <1 | <1 | | | |
| Chloroform | 1 | <1 | <1 | | | |
| 1,2-Dichloroethane | 1 | <1 | <1 | | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | | | |
| Carbon Tetrachloride | 1 | <1 | <1 | | | |
| Bromodichloromethane | 1 | <1 | <1 | | | |
| 1,2-Dichloropropane | 1 | <1 | <1 | | | |
| cis-1,2-Dichloropropane | 1 | <1 | <1 | | | |
| Trichloroethane | 1 | <1 | <1 | | | |
| Dibromochloromethane | 1 | <1 | <1 | | | |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | | | |
| trans-1,2-Dichloropropene | 1 | <1 | <1 | | | |
| Bromoform | 1 | <1 | <1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | | | |
| Tetrachloroethane | 1 | <1 | <1 | | | |
| Chlorobenzene | 1 | <1 | <1 | | | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | | | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | | | |
| Bromochloroethane 85 | 1 | 100% | 92% | | | |

6-23-89

6-23-89

COMMENTS: 85-Surrogate standard reported as percent recovery
copy to:

ANALYST

Jim

APPROVED BY

W

COMPLETED

F-375

DATE

JUN. 12. 1989

Page -

REPORT FOR: FLE AIR FORCE BASE
CHRM HILL-SAC
SAC 2477P.FI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 06-09-89
DATE EXTRACTED:
DATE ANALYZED:

REFERENCE NUMBER: S 23469
PAGE OF
DATE:
PHONE:
SAMPLED BY: KROOK
DATE RECEIVED: 06-12-89

Test Method: EPA-800-8020 () ug/l () ug/kg () ug/kg
Extraction method: EPA 5030

| | DETECT | BLANK | METHOD | | | |
|-------------------------|---------|---------|--------|--|--|--|
| | 1 | 1.058 | | | | |
| tert-Butyl Methyl Ether | <1 | <1 | | | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| Trifluorotoluene SS | 100% | 90% | | | | |
| | 6-23-89 | 6-23-89 | | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

J.W.

APPROVED BY

m

COMPLETED BY

CHECKED BY

LACK, FREE HAND: S. JIP
TRM

F-376

DATE: 06-23-89

2025-2026-21-00

PAGE OF

DATE:

NOTE:

SAMPLE 5: CORLEY

DATE RECEIVED: 06-12-69

DATE 2/15/2011

File # 100-3610

Reference is made to the fact that the above information was obtained from the files of the FBI, and is not to be used for any other purpose than the one for which it was obtained.

1 mg/l ☒ mg/l () mg/l () ug/kg

757405

detect BLANK 1.0587

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

FILE-L 131

APPROVED: P1

03545750 5

45-15, 16

F-377

CHLO HILL LABORATORY

PAGE 7

TEST:

DATE: 06-30-89

REPORT TO: HILL AIR FORCE BASE

REFERENCE NUMBER: 6 13470

CHLO HILL SPC

PAGE OF

SAC 14059.11.04

DATE:

ATTENTION: WAYNE PEARCE

PHONE:

SAMPLE DESCRIPTION: WATER SITE 2

SAMPLED BY: CORLEY

DATE OF SAMPLE: 06-09-89

DATE RECEIVED: 06-12-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-802-8020

() mg/l () ug/l () mg/kg () ug/kg

Extraction method: EPA 5050

| | METHOD | | |
|-------------------------|--------|---------|---------|
| | DETECT | BLANK | 1.0567 |
| LIMIT | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 |
| benzene | | | |
| Toluene | | | |
| Chlorobenzene | | | |
| Ethyl benzene | | | |
| Total Xylenes | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |
| Trifluorotoluene 991 | — | 100% | 80% |
| | | 6-23-89 | 6-23-89 |

SE- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETED BY

CHECKED BY

FOR FID: MR BRIAN

F-378

DATE: 06-30-89

CHUM Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Oct. 11, 1989

Page 1

BEN FICH, MR BRIAN
TRACY

DUE DATE: 06-30-89

REPORT TO: BEALE AIF FORCE BASE
CHUM HILL/SAC
SAC 24059.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 06-12-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-501-8010
Extraction method: EPA 5030

REFERENCE NUMBER: 6 23480
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-13-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0588 | | | |
|---------------------------|--------|-----------------|--------|--|--|--|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | | | | | |
| Dichlorodifluoromethane | 1 | | | | | |
| Vinyl Chloride | 1 | | | | | |
| Chloroethane | 1 | | | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | | | | | |
| 1,1-Dichloroethane | 1 | | | | | |
| trans-1,2-Dichloroethene | 1 | | | | | |
| Chloroform | 1 | | | | | |
| 1,2-Dichloroethane | 1 | | | | | |
| 1,1,1-Trichloroethane | 1 | | | | | |
| Carbon Tetrachloride | 1 | | | | | |
| Bromodichloromethane | 1 | | | | | |
| 1,2-Dichloropropane | 1 | | | | | |
| cis-1,2-Dichloropropene | 1 | | | | | |
| Trichloroethene | 1 | | | | | |
| Dibromochloromethane | 1 | | | | | |
| 1,1,2-Trichloroethane | 1 | | | | | |
| trans-1,3-Dichloropropene | 1 | | | | | |
| Bromoform | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | 1 | | | | | |
| Tetrachloroethene | 1 | | | | | |
| Chlorobenzene | 1 | | | | | |
| 1,3-Dichlorobenzene | 1 | | | | | |
| 1,2-Dichlorobenzene | 1 | | | | | |
| 1,4-Dichlorobenzene | 1 | | | | | |
| Bromochloromethane SS | 1 | 100% | 112% | | | |

6-24-89 6-24-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST Jim APPROVED BY me

COMPLETED BY _____
CHECKED BY _____

F-379

Jun. 13, 1989

Page 1

PCN FICH M5 BRIAN
TRACY

DUE DATE:06-30-89

REPORT TO:BEALE AIR FORCE BASE
CHM HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER:5 23483

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED:06-13-89

ATTENTION:WAYNE PEARCE

SAMPLE DESCRIPTION:WATER SITE 2

DATE OF SAMPLE:06-12-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-602-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | METHOD | | | | | |
|-------------------------|--------|---------|---------|--|--|--|
| | DETECT | BLANK | 1.0588 | | | |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | — | <1 | <1 | | | |
| Benzene | — | — | <1 | | | |
| Toluene | — | — | 3 | | | |
| Chlorobenzene | — | — | <1 | | | |
| Ethyl benzene | — | — | — | | | |
| Total Xylenes | — | — | — | | | |
| 1,3-Dichlorobenzene | — | — | — | | | |
| 1,2-Dichlorobenzene | — | — | — | | | |
| 1,4-Dichlorobenzene | — | — | — | | | |
| Trifluorotoluene SS | — | 100% | 103% | | | |
| | | 6-24-89 | 6-24-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

J.W.D.

APPROVED BY

mc

COMPLETED BY

CHECKED BY

CH2M Hill Laboratory
2215 Railroad Avenue, Redding, CA 96001

Jun. 13, 1989

Page 1

SEN: RICHARD TRIM
TRAC:

DUE DATE: 06-30-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 13
DATE OF SAMPLE: 06-12-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: S 23485
PAGE OF
DATE:
PHONE: -
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED: 06-13-89

| | detect | METHOD
BLANK | 1.0590 | 2.0591 | 3.0592 | 4.0593 |
|---------------------------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Dichlorodifluoromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Vinyl Chloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Methylene chloride | 5 | <5 | <5 | <5 | 130 | 170 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chloroform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,1-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Carbon Tetrachloride | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromodichloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichloropropane | 1 | 1 | 1 | 1 | 1 | 1 |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trichloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Dibromochloromethane | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromoform | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | 1 | 1 | 1 |
| Tetrachloroethene | 1 | 1 | 1 | 1 | 1 | 1 |
| Chlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Bromochloromethane SS | 1 | 100%
6-24-89 | 114%
6-24-89 | 117%
6-24-89 | 108%
6-24-89 | 103%
6-24-89 |

COMMENTS: SS-Surr data standard reported as percent recovery
copy to:

ANALYST

APPROVED BY

P-321

CH2M Hill Laboratory
2219 Railroad Avenue, Redding, CA 96001

Aug. 13, 1989

Page 1

BEN FIORI MS DEIAN
TRAC

DUE DATE:06-30-89

REPORT TO:BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION:WAYNE PEARCE
SAMPLE DESCRIPTION:WATER SITE 13
DATE OF SAMPLE:06-12-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER:S 23485
PAGE OF
DATE:
PHONE:
SAMPLED BY: CHRIS CORLEY
DATE RECEIVED:06-13-89

| | DETECT | METHOD
BLANK | 1.0590 | 2.0591 | 3.0592 | 4.0593 |
|-------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | | | <1 | | | |
| Toluene | | | 1 | | | |
| Chlorobenzene | | | <1 | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethylene SS | — | 100% | 106% | 114% | 90 | 122% |
| | | 6-24-89 | 6-24-89 | 6-24-89 | 6-24-89 | 6-24-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to;

ANALYST J.W. APPROVED BY hr

COMPLETED BY
DATE:

F-382

State Hill Laboratory
1110 Railroad Avenue, Reading, PA 19601

06-14-89

Page 1

EPA Hill Lab
TRAL

DATE: 06-30-89

REMARK: 1. SCALE FOR FORIE D-38
OF 100 MILL BAC
SAC 100% P1.04

REFERENCE NUMBER: 10496

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 06-13-89

ATTENTION: MARYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 06-12-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-821-S010

() mg/l

(✓) ug/l

() mg/kg

() ug/kg

Extraction Method: EPA 8000

| | METHOD | | | | | |
|-----------------------------|--------|---------|-----------|---------|--|--|
| | Blank | 1.0529 | 2. TBlank | | | |
| | Blank | 1.0529 | 2. TBlank | | | |
| Chloromethane | 1 | <1 | <1 | <1 | | |
| Bromomethane | 1 | <1 | <1 | <1 | | |
| Dichlorodifluoromethane | 1 | <1 | <1 | <1 | | |
| vinyl Chloride | 1 | <1 | <1 | <1 | | |
| Chloroethane | 1 | <1 | <1 | <1 | | |
| Methylene chloride | 5 | <5 | <5 | <5 | | |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethene | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 | | |
| trans-1,2-Dichloroethene | 1 | <1 | <1 | <1 | | |
| Chloroform | 1 | <1 | <1 | <1 | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 | | |
| 1,1,2-Trichloroethane | 1 | <1 | <1 | <1 | | |
| Carbon tetrachloride | 1 | <1 | <1 | <1 | | |
| Bromochloromethane | 1 | <1 | <1 | <1 | | |
| 1,1-Dichloropropene | 1 | <1 | <1 | <1 | | |
| cis-1,2-Dichloropropene | 1 | <1 | <1 | <1 | | |
| Trichloroethene | 1 | <1 | <1 | <1 | | |
| Dibromodichloromethane | 1 | <1 | <1 | <1 | | |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 | | |
| trans-1,2-Dichloropropene | 1 | <1 | <1 | <1 | | |
| Bromobenzene | 1 | <1 | <1 | <1 | | |
| 1,1,1,2,2-Pentachloroethane | 1 | <1 | <1 | <1 | | |
| Tetrachloroethene | 1 | <1 | <1 | <1 | | |
| Chlorobenzene | 1 | <1 | <1 | <1 | | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | <1 | | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | <1 | | |
| Bromochloromethane SS | 1 | 100% | 105% | 103% | | |
| | | 6-24-89 | 6-24-89 | 6-24-89 | | |

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to;

ANALYST

JD

APPROVED BY

h

COMPLETED BY

DATE

F-383

CNDP Hill Laboratory
2015 Railroad Avenue, Redding, CA 96001

Jun 13, 1989

Page 2

TEL

DUE DATE: 06-30-89

REPORT TO: BLAKE AIR FORCE BASE
CNDP HILL/SAC
SAC 24759, RI.04

REFERENCE NUMBER: 9 20486

PAGE OF

DATE:

PHONE:

SAMPLED BY: CHRIS CORLEY

DATE RECEIVED: 06-13-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 2

DATE OF SAMPLE: 06-12-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-802-8020

() mg/l (☒) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

| | DETECT | METHOD | | | | |
|-------------------------|--------|---------|---------|----------|--|--|
| | | BLANK | 1.0589 | 2.TBLANK | | |
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | | |
| Benzene | | | | | | |
| Toluene | | | | | | |
| Chlorobenzene | | | | | | |
| Ethyl benzene | | | | | | |
| Total Xylenes | | | | | | |
| 1,3-Dichlorobenzene | | | | | | |
| 1,2-Dichlorobenzene | | | | | | |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | | |
| Trifluorotoluene SS | — | 100% | 123% | 86% | | |
| | | 6-24-89 | 6-24-89 | 6-24-89 | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Signature)

APPROVED BY

(Signature)

COMPLETED BY

CHECKED BY

F-384

FILED IN 111-

DATE: 6-24-89

Page 2

Page 2

1-10-80
1-10-80

DUE DATE: 07-01-89

REPORT TO: CALIFORNIA FORCE BASE
CAMP 100-880
SAC 04059.R1.04
ATTENTION: JANE PEARCE
SAMPLE DESCRIPTION: WATER SITE 19
DATE OF SAMPLE: 06-13-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 8030

REFERENCE NUMBER: 00170
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-14-89

() mg/l (✓) ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0595 | 2.0596 | 3.0597 | 4.0596 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| Chloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Dichlorodifluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Vinyl Chloride | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | 1 | <1 | <1 | <1 | <1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 | <1 | <1 | <1 | <1 |
| Chloroform | 1 | <1 | <1 | <1 | 4 | 3 |
| 1,2-Dichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Carbon Tetrachloride | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromochloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,2-Dichloropropane | 1 | <1 | <1 | <1 | <1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 | <1 |
| Trichloroethene | 1 | <1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,2-Trifluoroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 | <1 | <1 | <1 | <1 |
| propanone | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 | <1 | <1 | <1 | <1 |
| Tetrachloroethene | 1 | <1 | <1 | <1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| Bromochloromethane SS | 1 | 100% | 102% | 105% | 110% | 111% |
| | | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 |

COMMENTS: SS-SUBSTRATE standard reported as percent recovery
copy to:

Fragrant Sample!

ANALYST: APPROVED BY: [Signature]

COMPLETED BY:
CHECKED BY:
DATE:

Jan. 14, 1989

Page 2

RECEIVED BY: BEN LAMPY
TRAC

DUE DATE: 07-02-89

REPORT TO: BEALS AIR FORCE BASE
CHOF HILL/SAC
SAC 04755.F11.04

REFERENCE NUMBER: 5 10500

PAGE OF

DATE:

PHONE:

ATTENTION: WAYNE FEARCE

SAMPLED BY: CORLEY

SAMPLE DESCRIPTION: WATER SITE 19

DATE RECEIVED: 06-14-89

DATE OF SAMPLE: 05-10-89

DATE EXTRACTED:

DATE ANALYZED:

Test Method: EPA-802-8020

() mg/l

(✓) ug/l

() mg/kg

() ug/kg

Extraction method: EPA 8030

| | METHOD | | | | | |
|-------------------------|--------|---------|---------|---------|---------|---------|
| | DETECT | BLANK | 1.0595 | 2.0596 | 3.0597 | 4.0598 |
| | LIMIT | | | | | |
| tert-Butyl methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | 1 | <1 | <1 | <1 | <1 | <1 |
| Toluene | 1 | 1 | 1 | 2 | 1 | 1 |
| Chlorobenzene | 1 | <1 | <1 | <1 | <1 | <1 |
| Ethyl benzene | 1 | 2 | 2 | 2 | 1 | 1 |
| Total Xylenes | 1 | 5 | 5 | 5 | 1 | 1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | <1 | 1 | 1 |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | 1 | 1 | 1 |
| Trifluorotoluene SS: | — | 100% | 82% | 92% | 105% | 105% |
| | | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 |

Fragrant Sample

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

(Jw)

APPROVED BY

W

COMPLETED BY

CHECKED BY

F-386

LAB. REF: 117.11.1

Aug. 14, 1989

Page 4

BERNARD W. FOLAN
TRAV:

DUE DATE: 07-03-89

REPORT TO: BEALE AIR FORCE BASE
CHEN HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: S 23501

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 06-14-89

ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 06-13-89
DATE EXTRACTED:
DATE ANALYZED:

Test Methods: EPA-601-8010
Extraction method: EPA 5030

() mg/l (✓) ug/l () mg/kg () ug/kg

METHOD

detect BLANK 1.0594

| | detect | BLANK | 1.0594 | | | |
|---------------------------|--------|-------|--------|--|--|--|
| | LIMIT | | | | | |
| Chloromethane | 1 | <1 | <1 | | | |
| Bromomethane | 1 | 1 | 1 | | | |
| Dichlorodifluoromethane | 1 | 1 | 1 | | | |
| Vinyl Chloride | 1 | 1 | 1 | | | |
| Chloroethane | 1 | 1 | 1 | | | |
| Methylene chloride | 5 | <5 | <5 | | | |
| Trichlorofluoromethane | 1 | <1 | <1 | | | |
| 1,1-Dichloroethene | 1 | 1 | 1 | | | |
| 1,1-Dichloroethane | 1 | 1 | 1 | | | |
| trans-1,2-Dichloroethene | 1 | 1 | 1 | | | |
| Chloroform | 1 | 1 | 1 | | | |
| 1,2-Dichloroethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| Carbon Tetrachloride | 1 | 1 | 1 | | | |
| Bromodichloromethane | 1 | 1 | 1 | | | |
| 1,2-Dichloropropane | 1 | 1 | 1 | | | |
| cis-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Trichloroethene | 1 | 1 | 1 | | | |
| Dibromochloromethane | 1 | 1 | 1 | | | |
| 1,1,2-Trichloroethane | 1 | 1 | 1 | | | |
| trans-1,3-Dichloropropene | 1 | 1 | 1 | | | |
| Bromoform | 1 | 1 | 1 | | | |
| 1,1,2,2-Tetrachloroethane | 1 | 1 | 1 | | | |
| Tetrachloroethene | 1 | 1 | 1 | | | |
| Chlorobenzene | 1 | 1 | 1 | | | |
| 1,3-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,2-Dichlorobenzene | 1 | 1 | 1 | | | |
| 1,4-Dichlorobenzene | 1 | 1 | 1 | | | |
| Bromochloromethane SS | 1 | 100% | 117% | | | |

6-26-89 6-26-89

COMMENTS: SS-Surrogate standard reported as percent recovery
copy to:

ANALYST JW APPROVED BY W

COMPLETED BY WJ
CHECKED BY WJ

F-387

Jun. 14, 1989

Page 4

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24059.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 2
DATE OF SAMPLE: 06-13-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-602-8020
Extraction method: EPA 5030

REFERENCE NUMBER: S 23501
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-14-89

() mg/l (☒) ug/l () mg/kg () ug/kg

| | DETECT | METHOD | | | |
|-------------------------|---------|---------|--|--|--|
| | BLANK | 1.0594 | | | |
| | LIMIT | | | | |
| tert-Butyl Methyl Ether | <1 | <1 | | | |
| Benzene | <1 | <1 | | | |
| Toluene | 38 | 38 | | | |
| Chlorobenzene | <1 | <1 | | | |
| Ethyl benzene | | | | | |
| Total Xylenes | | | | | |
| 1,3-Dichlorobenzene | | | | | |
| 1,2-Dichlorobenzene | | | | | |
| 1,4-Dichlorobenzene | | | | | |
| Trifluorotoluene SS | 100% | 97% | | | |
| | 6-26-89 | 6-26-89 | | | |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST Jim APPROVED BY m

COMPLETED BY mg
CHECKED BY l

Jun. 15. 1989

Page 1

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

BEN RICH MR BRIAN
TRAC

DUE DATE: 07-03-89

REPORT TO: SEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04
ATTENTION: WAYNE PEARCE
SAMPLE DESCRIPTION: WATER SITE 1
DATE OF SAMPLE: 06-14-89
DATE EXTRACTED:
DATE ANALYZED:
Test Methods: EPA-601-8010
Extraction method: EPA 5030

REFERENCE NUMBER: S 23521
PAGE OF
DATE:
PHONE:
SAMPLED BY: CORLEY
DATE RECEIVED: 06-13-89

() mg/l () ug/l () mg/kg () ug/kg

| | detect | METHOD
BLANK | 1.0599 | 2.0600 | 3.0601 | 4.0602 |
|---------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| Chloromethane | ↓ | <1 | <1 | <1 | <1 | <1 |
| Bromomethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dichlorodifluoromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Vinyl Chloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Methylene chloride | 5 | <5 | <5 | <5 | <5 | <5 |
| Trichlorofluoromethane | 1 | <1 | <1 | <1 | <1 | <1 |
| 1,1-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,2-Dichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chloroform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,1-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Carbon Tetrachloride | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromodichloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichloropropane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| cis-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trichloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Dibromochloromethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2-Trichloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| trans-1,3-Dichloropropene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromoform | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,1,2,2-Tetrachloroethane | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Tetrachloroethene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Bromochloromethane SS | — | 100% | 104% | 103% | 94% | 100% |
| | | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 |

COMMENTS: SS-surrogate standard reported as percent recovery
copy to;

ANALYST

J.W.

APPROVED BY

W

COMPLETED BY

DATE BY

F-389

96001

CH2M Hill Laboratory
2218 Railroad Avenue, Redding, CA 96001

Jun. 15, 1989

Page 1

BEN RICH MS BRIAN
TRACY

DUE DATE: 07-03-89

REPORT TO: BEALE AIR FORCE BASE
CH2M HILL/SAC
SAC 24359.RI.04

REFERENCE NUMBER: S 23521

PAGE OF

DATE:

PHONE:

SAMPLED BY: CORLEY

DATE RECEIVED: 06-15-89

ATTENTION: WAYNE PEARCE

SAMPLE DESCRIPTION: WATER SITE 1

DATE OF SAMPLE: 06-14-89

DATE EXTRACTED:

DATE ANALYZED:

Test Methods: EPA-802-8020

() mg/l (✓) ug/l () mg/kg () ug/kg

Extraction method: EPA 5030

4.0602

| | DETECT | METHOD
BLANK | 1.0579 | 2.0600 | 3.0601 | 4.0602 |
|-------------------------|--------|-----------------|---------|---------|---------|---------|
| | LIMIT | | | | | |
| tert-Butyl Methyl Ether | 1 | <1 | <1 | <1 | <1 | <1 |
| Benzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Toluene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Chlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Ethyl benzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Total Xylenes | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,3-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,2-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 1,4-Dichlorobenzene | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Trifluorotoluene SS | — | 100% | 105% | 105% | 109% | 93% |
| | | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 | 6-26-89 |

SS- Surrogate Standard reported as percent recovery

COMMENTS:

copy to:

ANALYST

J. D.

APPROVED BY

W

COMPLETED BY

CHECKED BY

F-390

100%
6-26-89



ENVIRONMENTAL
Economists
Scientists

METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: 0603

Reference No: 24158-1

Sample Matrix: Water

Date Sampled: 8-25-1989
Date Received: 8-28-1989
Date Analyzed: 9-6-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 92 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: Burnett J. Tyson



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: 0603

Reference No: 24158-1

Sample Matrix: Water

Date Sampled: 8-25-1989
Date Received: 8-28-1989
Date Analyzed: 9-6-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 106 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: *Sumner J. Tyson*



Engineers
Planners
Economists
Scientists

METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: 0606

Reference No: 24185-1

Sample Matrix: Water

Date Sampled: 8-28-1989
Date Received: 8-30-1989
Date Analyzed: 9-6-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 91 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: *Samuel J. Tyson*

000001



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: 0606

Reference No: 24185-1

Sample matrix: water

Date Sampled: 8-28-1989
Date Received: 8-30-1989
Date Analyzed: 9-6-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result | Second
Column
Confirmation |
|-------------------------|--------------------|-----------------|------------------|----------------------------------|
| tert-butyl methyl ether | 1 | <1 | <1 | |
| Benzene | 1 | <1 | <1 | |
| Toluene | 1 | <1 | 1 | 2 |
| Chlorobenzene | 1 | <1 | <1 | |
| Ethyl benzene | 1 | <1 | <1 | |
| Total Xylenes | 1 | <1 | <1 | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | |
| Surrogate (SS) | | 100 | 113 | |

Results reported as ug/L

Comments: Second column confirmation from Carbowax Megabore Column.

SS - Surrogate Standard reported as percent recovery.

Trifluorotoluene used as surrogate standard.

Approved By: Grey J. J. J.

000005



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: 0614

Reference No: 24191-1

Sample Matrix: Water

Date Sampled: 8-30-1989
Date Received: 8-31-1989
Date Analyzed: 9-7-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 105 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: Sumit J. Tyron

000043



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: 0614

Reference No: 24191-1

Sample matrix: water

Date Sampled: 8-30-1989
Date Received: 8-31-1989
Date Analyzed: 9-7-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 78 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Burnett J. Tyson

000044



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24202-1

Sample Matrix: Water

Date Sampled: 8-31-1989
Date Received: 9-1-1989
Date Analyzed: 9-8-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 107 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: Bennett J. Tyson

000004



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24202-1

Sample matrix: water

Date Sampled: 8-31-1989

Date Received: 9-1-1989

Date Analyzed: 9-8-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 111 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Bennett J. Tyson

000005

METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: 0628 *0629*

Reference No: 24246-2

Sample Matrix: Water

Date Sampled: 9-7-1989
Date Received: 9-8-1989
Date Analyzed: 9-9-1989

| Compounds | Detection Limit | Method Blank | Sample Result |
|---------------------------|-----------------|--------------|---------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogates (SS) | | 100 | 112 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: *Bennett J. Tyson*

METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: 0628.29

Reference No: 24246-2

Sample matrix: water

Date Sampled: 9-7-1989
Date Received: 9-8-1989
Date Analyzed: 9-9-1989

| Compounds | Detection Limit | Method Blank | Sample Result | Second Column Confirmation |
|-------------------------|-----------------|--------------|---------------|----------------------------|
| tert-butyl methyl ether | 1 | <1 | <1 | |
| Benzene | 1 | <1 | <1 | |
| Toluene | 1 | <1 | 1 | <1 |
| Chlorobenzene | 1 | <1 | <1 | |
| Ethyl benzene | 1 | <1 | <1 | |
| Total Xylenes | 1 | <1 | <1 | |
| 1,3-Dichlorobenzene | 1 | <1 | <1 | |
| 1,2-Dichlorobenzene | 1 | <1 | <1 | |
| 1,4-Dichlorobenzene | 1 | <1 | <1 | |
| Surrogate (SS) | | 100 | 104 | |

Results reported as ug/L

Comments: Second column confirmation from Carbowax megabore column.
SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Grey Jordan



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24242-1

Sample Matrix: Water

Date Sampled: 9-6-1989
Date Received: 9-7-1989
Date Analyzed: 9-8-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 99 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By:



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24242-1

Sample matrix: water

Date Sampled: 9-6-1989

Date Received: 9-7-1989

Date Analyzed: 9-8-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 87 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: *Bennett J. Tyson*



Engineers
Planners
Economists
Scientists

METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: BAFB0631

Reference No: 24265-1

Sample Matrix: Water

Date Sampled: 9-8-1989
Date Received: 9-11-1989
Date Analyzed: 9-19-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result | Second
Column
Confirmation |
|---------------------------|--------------------|-----------------|------------------|----------------------------------|
| Chloromethane | 1 | < 1 | < 1 | |
| Bromomethane | 1 | < 1 | < 1 | |
| Dichlorodifluoromethane | 1 | < 1 | < 1 | |
| Vinyl chloride | 1 | < 1 | < 1 | |
| Chloroethane | 1 | < 1 | < 1 | |
| Methylene chloride | 5 | < 5 | < 5 | |
| Trichlorofluoromethane | . | < 1 | < 1 | |
| 1,1-Dichloroethene | 1 | < 1 | < 1 | |
| 1,1-Dichloroethane | 1 | < 1 | < 1 | |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 | |
| Chloroform | 1 | < 1 | < 1 | |
| 1,2-Dichloroethane | 1 | < 1 | < 1 | |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 | |
| Carbon tetrachloride | 1 | < 1 | < 1 | |
| Bromodichloromethane | 1 | < 1 | < 1 | |
| 1,2-Dichloropropane | 1 | < 1 | < 1 | |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 | |
| Trichloroethene | 1 | < 1 | 3 | 3 |
| Dibromochloromethane | 1 | < 1 | < 1 | |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 | |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 | |
| Bromoform | 1 | < 1 | < 1 | |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 | |
| Tetrachloroethene | 1 | < 1 | < 1 | |
| Chlorobenzene | 1 | < 1 | < 1 | |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 | |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 | |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 | |
| Surrogate (SS) | | 100 | 109 | |

Results reported as ug/L

Comments: Second column confirmation by VOCOL megabore.

SS - Surrogate Standard reported as percent recovery.

Bromochloromethane used as surrogate standard.

Approved By: Grey Jones



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: BAFB0631

Reference No: 24265-1

Sample Matrix: Water

Date Sampled: 9-8-1989
Date Received: 9-11-1989
Date Analyzed: 9-19-1989

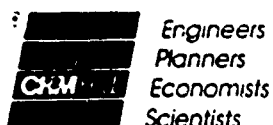
| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 94 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Greg Jordan



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24272-1

Sample Matrix: Water

Date Sampled: 9-11-1989
Date Received: 9-12-1989
Date Analyzed: 9-20-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 98 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: Gay Jones

000022



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale AFB
Client Sample ID: Travel blank

Reference No: 24272-1

Sample Matrix: Water

Date Sampled: 9-11-1989
Date Received: 9-12-1989
Date Analyzed: 9-20-1989

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | <1 | <1 |
| Benzene | 1 | <1 | <1 |
| Toluene | 1 | <1 | <1 |
| Chlorobenzene | 1 | <1 | <1 |
| Ethyl benzene | 1 | <1 | <1 |
| Total Xylenes | 1 | <1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 | <1 |
| Surrogate (SS) | | 100 | 96 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Greg Jones

000023



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale Air Force Base
Client Sample ID: BAFB0636

Reference No: 24304-1

Sample Matrix: Water

Date Sampled: 9-12-89
Date Received: 9-13-89
Date Analyzed: 9-25-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 117 | 117 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.

Approved By: Gray Jones



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale Air Force Base
Client Sample ID: BAFB0636

Reference No: 24304-1

Sample Matrix: Water

Date Sampled: 9-12-89
Date Received: 9-13-89
Date Analyzed: 9-25-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | < 1 | < 1 |
| Benzene | 1 | < 1 | < 1 |
| Toluene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| Ethyl benzene | 1 | < 1 | < 1 |
| Total Xylenes | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 105 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Gray J. J. J.



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale Air Force Base
Client Sample ID: BAFB0642

Reference No: 24331-1

Sample Matrix: Water

Date Sampled: 9-14-89

Date Received: 9-15-89

Date Analyzed: 9-25-89

| Compounds | Detection Limit | Method Blank | Sample Result | Second Column Confirm. |
|---------------------------|-----------------|--------------|---------------|------------------------|
| Chloromethane | 1 | < 1 | < 1 | |
| Bromomethane | 1 | < 1 | < 1 | |
| Dichlorodifluoromethane | 1 | < 1 | < 1 | |
| Vinyl chloride | 1 | < 1 | < 1 | |
| Chloroethane | 1 | < 1 | < 1 | |
| Methylene chloride | 5 | < 5 | < 5 | |
| Trichlorofluoromethane | 1 | < 1 | < 1 | |
| 1,1-Dichloroethene | 1 | < 1 | < 1 | |
| 1,1-Dichloroethane | 1 | < 1 | < 1 | |
| trans-1,2-Dichloroethene | 1 | < 1 | 5 | <1 |
| Chloroform | 1 | < 1 | < 1 | |
| 1,2-Dichloroethane | 1 | < 1 | < 1 | |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 | |
| Carbon tetrachloride | 1 | < 1 | < 1 | |
| Bromodichloromethane | 1 | < 1 | < 1 | |
| 1,2-Dichloropropane | 1 | < 1 | < 1 | |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 | |
| Trichloroethene | 1 | < 1 | 3 | 2 |
| Dibromochloromethane | 1 | < 1 | < 1 | |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 | |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 | |
| Bromoform | 1 | < 1 | < 1 | |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 | |
| Tetrachloroethene | 1 | < 1 | < 1 | |
| Chlorobenzene | 1 | < 1 | < 1 | |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 | |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 | |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 | |
| Surrogate (SS) | | 100 | 92 | |

Results reported as ug/L

Comments: Second column confirmation by Vocol Megabore.

SS - Surrogate Standard reported as percent recovery.

Bromochloromethane used as surrogate standard.

Approved By: Gray Jordan



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale Air Force Base
Client Sample ID: BAFB0642

Reference No: 24331-1

Sample Matrix: Water

Date Sampled: 9-14-89
Date Received: 9-15-89
Date Analyzed: 9-25-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | < 1 | < 1 |
| Benzene | 1 | < 1 | < 1 |
| Toluene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| Ethyl benzene | 1 | < 1 | < 1 |
| Total Xylenes | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | .70 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Greg Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010, 8011/8020, 8021

Date Tested: 9-6-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: BYT



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 9-7-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloroethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoroethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: LFT



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 9-8-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: BYT

CH2MHILL

Redding
Environmental Laboratory

F-413

916 244 5227



METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale Air Force Base
Client Sample ID: BAFB0646

Reference No: 24337-1

Sample Matrix: Water

Date Sampled: 9-15-89
Date Received: 9-18-89
Date Analyzed: 9-26-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|---------------------------|--------------------|-----------------|------------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 102 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Bromochloromethane used as surrogate standard.Approved By: Grey Jonku



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale Air Force Base
Client Sample ID: BAFB0646

Reference No: 24337-1

Sample Matrix: Water

Date Sampled: 9-15-89
Date Received: 9-18-89
Date Analyzed: 9-26-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | < 1 | < 1 |
| Benzene | 1 | < 1 | < 1 |
| Toluene | 1 | < 1 | 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| Ethyl benzene | 1 | < 1 | < 1 |
| Total Xylenes | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 98 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Gay Joubert

METHOD: 601/8010 (Volatile Halocarbons)

Client: Beale Air Force Base
 Client Sample ID: BAFB0649

Reference No: 24350-1

Sample Matrix: Water

Date Sampled: 9-18-89
 Date Received: 9-19-89
 Date Analyzed: 9-26-89

| Compounds | Detection Limit | Method Blank | Sample Result |
|---------------------------|-----------------|--------------|---------------|
| Chloromethane | 1 | < 1 | < 1 |
| Bromomethane | 1 | < 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 | < 1 |
| Vinyl chloride | 1 | < 1 | < 1 |
| Chloroethane | 1 | < 1 | < 1 |
| Methylene chloride | 5 | < 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 | < 1 |
| Chloroform | 1 | < 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 | < 1 |
| Bromodichloromethane | 1 | < 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Trichloroethene | 1 | < 1 | < 1 |
| Dibromochloromethane | 1 | < 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 | < 1 |
| Bromoform | 1 | < 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 | < 1 |
| Tetrachloroethene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 105 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
 Bromochloromethane used as surrogate standard.

Approved By: Greg Joubert



METHOD: EPA 602/8020 (Volatile Aromatics)

Client: Beale Air Force Base
Client Sample ID: BAFB0649

Reference No: 24350-1

Sample Matrix: Water

Date Sampled: 9-18-89
Date Received: 9-19-89
Date Analyzed: 9-26-89

| Compounds | Detection
Limit | Method
Blank | Sample
Result |
|-------------------------|--------------------|-----------------|------------------|
| tert-butyl methyl ether | 1 | < 1 | < 1 |
| Benzene | 1 | < 1 | < 1 |
| Toluene | 1 | < 1 | < 1 |
| Chlorobenzene | 1 | < 1 | < 1 |
| Ethyl benzene | 1 | < 1 | < 1 |
| Total Xylenes | 1 | < 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 | < 1 |
| Surrogate (SS) | | 100 | 82 |

Results reported as ug/L

Comments:

SS - Surrogate Standard reported as percent recovery.
Trifluorotoluene used as surrogate standard.

Approved By: Grey Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8810,601/8820,602

Date Tested: 10-3-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoroethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoroethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloroethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloroethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: Gary Jordan

CH2M HILL

Redding
Environmental Laboratory

916 244 5227



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 10-4-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloroethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoroethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoroethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloroethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloroethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: Gray Jones

CH2MHILL

Redding
Environmental Laboratory

F-419

916 244 5227



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 10-5-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloroethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoroethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoroethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: SM



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 11-22-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Greg Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 11-23-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 1 |
| Trichlorofluoromethane | 1 | < 5 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Greg Jones



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 11-23-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 20 | <20 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: *Greg Jordan*



METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/80

Date Tested: 11-22-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: 



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 11-30-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: *[Signature]*



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-01-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gay Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-01-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: *Gay Joubert*



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-04-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Greg Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-04-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gray Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-04-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 20 | < 20 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gray Jander



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/80

Date Tested: 12-09-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: 



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-09-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gray Jordan



METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/80

Date Tested: 12-12-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gray J. J. J.



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-11-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: 



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-12-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: Greg Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-13-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: *Greg Joubert*



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M HILL Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-14-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Gray Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8016,601/8020,602

Date Tested: 12-14-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: *Greg Jankin*



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-15-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: Gray Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-18-1989

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | <1 |
| Bromoethane | 1 | <1 |
| Dichlorodifluoromethane | 1 | <1 |
| Vinyl chloride | 1 | <1 |
| Chloroethane | 1 | <1 |
| Methylene chloride | 5 | <5 |
| Trichlorofluoromethane | 1 | <1 |
| 1,1-Dichloroethene | 1 | <1 |
| 1,1-Dichloroethane | 1 | <1 |
| trans-1,2-Dichloroethene | 1 | <1 |
| Chloroform | 1 | <1 |
| 1,2-Dichloroethane | 1 | <1 |
| 1,1,1-Trichloroethane | 1 | <1 |
| Carbon Tetrachloride | 1 | <1 |
| Bromodichloromethane | 1 | <1 |
| 1,2-Dichloropropane | 1 | <1 |
| cis-1,3-Dichloropropene | 1 | <1 |
| Trichloroethene | 1 | <1 |
| Dibromochloromethane | 1 | <1 |
| 1,1,2-Trichloroethane | 1 | <1 |
| trans-1,3-Dichloropropene | 1 | <1 |
| Bromoform | 1 | <1 |
| 1,1,2,2-Tetrachloroethane | 1 | <1 |
| Tetrachloroethene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |
| tert Butyl Methyl Ether | 1 | <1 |
| Benzene | 1 | <1 |
| Toluene | 1 | <1 |
| Chlorobenzene | 1 | <1 |
| Ethyl Benzene | 1 | <1 |
| meta-Xylene | 1 | <1 |
| ortho & para Xylene | 1 | <1 |
| 1,3-Dichlorobenzene | 1 | <1 |
| 1,2-Dichlorobenzene | 1 | <1 |
| 1,4-Dichlorobenzene | 1 | <1 |

Comments:

Approved by: Gay Joubert



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601/8020,602

Date Tested: 12-19-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |
| tert Butyl Methyl Ether | 1 | < 1 |
| Benzene | 1 | < 1 |
| Toluene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| Ethyl Benzene | 1 | < 1 |
| meta-Xylene | 1 | < 1 |
| ortho & para Xylene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Grey Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601

Date Tested: 12-23-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon Tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Greg Jordan



Engineers
Planners
Economists
Scientists

METHOD BLANK SUMMARY

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA 8010,601

Date Tested: 12-23-89

| Compound | Detection
Limit (PPB) | Method Blank
Result (PPB) |
|---------------------------|--------------------------|------------------------------|
| Chloromethane | 1 | < 1 |
| Bromoethane | 1 | < 1 |
| Dichlorodifluoromethane | 1 | < 1 |
| Vinyl chloride | 1 | < 1 |
| Chloroethane | 1 | < 1 |
| Methylene chloride | 5 | < 5 |
| Trichlorofluoromethane | 1 | < 1 |
| 1,1-Dichloroethene | 1 | < 1 |
| 1,1-Dichloroethane | 1 | < 1 |
| trans-1,2-Dichloroethene | 1 | < 1 |
| Chloroform | 1 | < 1 |
| 1,2-Dichloroethane | 1 | < 1 |
| 1,1,1-Trichloroethane | 1 | < 1 |
| Carbon tetrachloride | 1 | < 1 |
| Bromodichloromethane | 1 | < 1 |
| 1,2-Dichloropropane | 1 | < 1 |
| cis-1,3-Dichloropropene | 1 | < 1 |
| Trichloroethene | 1 | < 1 |
| Dibromochloromethane | 1 | < 1 |
| 1,1,2-Trichloroethane | 1 | < 1 |
| trans-1,3-Dichloropropene | 1 | < 1 |
| Bromoform | 1 | < 1 |
| 1,1,2,2-Tetrachloroethane | 1 | < 1 |
| Tetrachloroethene | 1 | < 1 |
| Chlorobenzene | 1 | < 1 |
| 1,3-Dichlorobenzene | 1 | < 1 |
| 1,2-Dichlorobenzene | 1 | < 1 |
| 1,4-Dichlorobenzene | 1 | < 1 |

Comments:

Approved by: Greg Jordan

METHOD BLANKS

Volatile Organic Compounds (SW8240)

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 11-18-88
CLIENT SAMPLE ID : METHOD BLANK 11-18-88
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 11-18-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 18 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10J acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 89 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 108 toluene-d8 (SS2) |
| 5U trichloroethene | 91 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Goss

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: A11238B2
Client Sample ID: VBKSM2

Concentration: MED
Sample Matrix: SOIL
Percent Moisture: 0.0

Date Extracted: _____
Date Analyzed: 11/23/
Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|--------|------------|-----------------------------|--------|
| 74-87-3 | Chloromethane | 1300 U | 71-43-2 | Benzene | 630 U |
| 74-83-9 | Bromomethane | 1300 U | 10061-02-6 | trans-1,3-Dichloropropene | 630 U |
| 75-01-4 | Vinyl Chloride | 1300 U | 110-75-8 | 2-Chloroethylvinylether . | 1300 U |
| 75-00-3 | Chloroethane | 1300 U | 75-25-2 | Bromoform | 630 U |
| 75-09-2 | Methylene Chloride | 2800 | 591-78-6 | 2-Hexanone | 1300 U |
| 67-64-1 | Acetone | 1300 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 1300 U |
| 75-15-0 | Carbon Disulfide | 630 U | 127-18-4 | Tetrachloroethene | 630 U |
| 75-35-4 | 1,1-Dichloroethene | 630 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 630 U |
| 75-34-3 | 1,1-Dichloroethane | 630 U | 108-88-3 | Toluene | 630 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 630 U | 108-90-7 | Chlorobenzene | 630 U |
| 67-66-3 | Chloroform | 630 U | 100-41-4 | Ethylbenzene | 630 U |
| 107-06-2 | 1,2-Dichloroethane | 630 U | 100-42-5 | Styrene | 630 U |
| 78-93-3 | 2-Butanone | 1300 U | 1330-20-7 | Xylenes (total) | 630 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 630 U | | | |
| 56-23-5 | Carbon Tetrachloride | 630 U | | Toluene-d8 - SS : | 93 |
| 108-05-4 | Vinyl Acetate | 1300 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 630 U | | 1,2-Dichloroethane-d4 - SS | 120 |
| 78-87-5 | 1,2-Dichloropropane | 630 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 630 U | | | |
| 79-01-6 | Trichloroethene | 630 U | | | |
| 124-48-1 | Dibromochloromethane | 630 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 630 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

E-445

9 Railroad Avenue, P O Box 2088
Redding, California 96001

CK

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 11-26-88
CLIENT SAMPLE ID : METHOD BLANK 11-26-88
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 11-26-88

| | |
|-------------------------------|---------------------------------|
| 1300U chloroethane | 630U dibromochloroethane |
| 1300U bromomethane | 630U 1,1,2-trichloroethane |
| 1300U vinyl chloride | 630U benzene |
| 1300U chloroethane | 630U trans-1,3-dichloropropene |
| 470J methylene chloride | 1300U 2-chloroethyl vinyl ether |
| 860J acetone | 630U bromoform |
| 630U carbon disulfide | 1300U 4-methyl-2-pentanone |
| 630U 1,1-dichloroethene | 1300U 2-hexanone |
| 630U 1,1-dichloroethane | 630U 1,1,2,2-tetrachloroethane |
| 630U trans-1,2-dichloroethene | 630U tetrachloroethene |
| 630U chloroform | 630U toluene |
| 630U 1,2-dichloroethane | 630U chlorobenzene |
| 1300U 2-butanone | 630U ethylbenzene |
| 630U 1,1,1-trichloroethane | 630U styrene |
| 630U carbon tetrachloride | 630U xylenes (ota) |
| 1300U vinyl acetate | 630U xylene (p) |
| 630U bromodichloroethane | SURROGATE 1 RECOVERY |
| 630U 1,2-dichloropropane | 90 1,2-dichloroethane-d4 (SS1) |
| 630U cis-1,3-dichloropropene | 93 toluene-d8 (SS2) |
| 630U trichloroethene | 105 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Eric J. [Signature]

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

98
CROM HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-241-1715

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : R9 11-29-99
CLIENT SAMPLE ID : METHOD BLANK 11-29-99
REPORT DATE : 12-09-1999

CLIENT NAME : BEALE AFB
SAMPLE RECEIVED : N/A
SAMPLE TYPE : SOLID/SEDI-MENT/SOLIDS

DATE SAMPLED : N/A
DATE EXTRACTED : 11-29-99
DATE ANALYSED : 11-29-99

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U saccharine chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-ethyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,1,2-tetrachloroethane |
| 5U trans-1,2-dichloroethane | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U dibromochloroethane | SURROGATE & RECOVERY |
| 5U 1,2-dichloropropane | 96 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,2-dichloropropene | 61 toluene-d8 (SS2) |
| 5U trichloroethane | 92 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

E = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 11-29-88
CLIENT SAMPLE ID : METHOD BLANK 11-29-88
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 11-29-88

| | |
|-------------------------------|---------------------------------|
| 1300U chloroethane | 630U dibromochloroethane |
| 1300U bromoethane | 630U 1,1,2-trichloroethane |
| 1300U vinyl chloride | 630U benzene |
| 1300U chloroethane | 630U trans-1,3-dichloropropene |
| 740 methylene chloride | 1300U 2-chloroethyl vinyl ether |
| 780J acetone | 630U bromoform |
| 630U carbon disulfide | 1300U 4-methyl-2-pentanone |
| 630U 1,1-dichloroethene | 1300U 2-hexanone |
| 630U 1,1-dichloroethane | 630U 1,1,2,2-tetrachloroethane |
| 630U trans-1,2-dichloroethene | 630U tetrachloroethene |
| 630U chloroform | 630U toluene |
| 630U 1,2-dichloroethane | 630U chlorobenzene |
| 1300U 2-butanone | 630U ethylbenzene |
| 630U 1,1,1-trichloroethane | 630U styrene |
| 630U carbon tetrachloride | 630U xylenes (o+m) |
| 1300U vinyl acetate | 630U xylene (p) |
| 630U bromodichloroethane | SURROGATE 2 RECOVERY |
| 630U 1,2-dichloropropane | 107 1,2-dichloroethane-d4 (SS1) |
| 630U cis-1,3-dichloropropene | 114 toluene-d8 (SS2) |
| 630U trichloroethene | 131 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Quinn Jones

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: B1130882
Client Sample ID: VBLKS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: 0.0

Date Extracted: _____
Date Analyzed: 11/30/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 1 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 97 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 110 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

JOHN HILL ENVIRONMENTAL LABORATORY
2018 FAIRFACD AVENUE
REDDING, CA 96001 916-247-1703

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RD 11-20-88
CLIENT SAMPLE ID : METHOC BLANK 11-20-88
REPORT DATE : 12-13-1988

CLIENT NAME : SEALE AFB
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL SEDIMENT/SOLIDS

DATE SAMPLED : 11-21-88
DATE EXTRACTED : 11-23-88
DATE ANALYSED : 11-30-88

| | |
|----------------------------------|---------------------------------|
| 1300U chloroethane | 630U dibromochloroethane |
| 1300U bromoethane | 630U 1,1,2-trichloroethane |
| 1300U vinyl chloride | 630U benzene |
| 1300U chloroethane | 630U trans-1,3-dichloropropene |
| 1300U tetrafluoroethane | 1700U 2-chloroethyl vinyl ether |
| 1300U acetone | 630U bromoform |
| 630U carbon disulfide | 1300U 4-methyl-2-pentanone |
| 630U 1,1-dichloroethane | 1700U 2-hexanone |
| 630U 1,1-dichloroethane | 630U 1,1,2,2-tetrachloroethane |
| 630U trans-1,2-dichloroethene | 630U tetrachloroethene |
| 630U chloroform | 630U toluene |
| 630U 1,2-dichloroethane | 630U chlorobenzene |
| 1300U 2-butanone | 630U ethylbenzene |
| 630U 1,1,1-trichloroethane | 630U styrene |
| 630U carbon tetrachloride | 630U xylenes (o-m) |
| 1700U vinyl acetate | 630U xylene (p) |
| 630U bromodichloroethane | SURROGATE 1 RECOVER: |
| 630U 1,2-dichloropropane | 115 1,2-dichloroethane-d4 (SS1) |
| 630U cis-1,3-dichlorocyclohexene | 84 toluene-d8 (SS2) |
| 630U trichloroethene | 94 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

S = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-1-88
CLIENT SAMPLE ID : METHOD BLANK 12-1-88
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-1-88

| | |
|-------------------------------|---------------------------------|
| 1300U chloroethane | 630U dibromochloroethane |
| 1300U bromoethane | 630U 1,1,2-trichloroethane |
| 1300U vinyl chloride | 630U benzene |
| 1300U chloroethane | 630U trans-1,3-dichloropropene |
| 610J methylene chloride | 1300U 2-chloroethyl vinyl ether |
| 1300U acetone | 630U bromoform |
| 630U carbon disulfide | 1300U 4-methyl-2-pentanone |
| 630U 1,1-dichloroethene | 1300U 2-hexanone |
| 630U 1,1-dichloroethane | 630U 1,1,2,2-tetrachloroethane |
| 630U trans-1,2-dichloroethene | 630U tetrachloroethene |
| 630U chloroform | 630U toluene |
| 630U 1,2-dichloroethane | 630U chlorobenzene |
| 1300U 2-butanone | 630U ethylbenzene |
| 630U 1,1,1-trichloroethane | 630U styrene |
| 630U carbon tetrachloride | 630U xylenes (o+m) |
| 1300U vinyl acetate | 630U xylene (p) |
| 630U bromodichloromethane | SURROGATE 1 RECOVERY |
| 630U 1,2-dichloropropane | 87 1,2-dichloroethane-d4 (SS1) |
| 630U cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 630U trichloroethene | 99 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian G. Hays

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Sample ID: B12058B1
Parent Sample ID: VBKLS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 12/05/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 8 B | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 23 B | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-69-4 | Trichlorofluoromethane . . | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 108-88-3 | Toluene | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-42-5 | Styrene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 1330-20-7 | Xylenes (total) | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 541-73-1 | 1,3-Dichlorobenzene | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | 106-46-7 | 1,4-Dichlorobenzene | 5 U |
| 56-23-5 | Carbon Tetrachloride | 5 U | 95-50-1 | 1,2-Dichlorobenzene | 5 U |
| 108-05-4 | Vinyl Acetate | 10 U | 107-02-8 | Acrolein | 100 U |
| 75-27-4 | Bromodichloromethane . . . | 5 U | 107-13-1 | Acrylonitrile | 100 U |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10051-01-5 | cis-1,3-Dichloropropene . . | 5 U | | Toluene-d8 - SS | 100 |
| 1-6 | Trichloroethene | 5 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 144-48-1 | Dibromochloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: B12058B1
 Client Sample ID: VBLKS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 12/05/88
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|----------------------------------------|-------|--------------------------------------|-------|
| 74-87-3 Chloromethane | 10 U | 71-43-2 Benzene | 5 U |
| 74-83-9 Bromomethane | 10 U | 10061-02-6 trans-1,3-Dichloropropene | 5 U |
| 75-01-4 Vinyl Chloride | 10 U | 110-75-8 2-Chloroethylvinylether . | 10 U |
| 75-00-3 Chloroethane | 10 U | 75-25-2 Bromoform | 5 U |
| 75-09-2 Methylene Chloride | 8 | 591-78-6 2-Hexanone | 10 U |
| 67-64-1 Acetone | 23 | 108-10-1 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 Carbon Disulfide | 5 U | 127-18-4 Tetrachloroethene | 5 U |
| 75-35-4 1,1-Dichloroethene | 5 U | 79-34-5 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 1,1-Dichloroethane | 5 U | 108-88-3 Toluene | 5 U |
| 540-59-0 1,2-Dichloroethene (total) | 5 U | 108-90-7 Chlorobenzene | 5 U |
| 67-66-3 Chloroform | 5 U | 100-41-4 Ethylbenzene | 5 U |
| 107-06-2 1,2-Dichloroethane | 5 U | 100-42-5 Styrene | 5 U |
| 78-93-3 2-Butanone | 10 U | 1330-20-7 Xylenes (total) | 5 U |
| 71-55-6 1,1,1-Trichloroethane . . . | 5 U | | |
| 56-23-5 Carbon Tetrachloride | 5 U | Toluene-d8 - SS | 100 |
| 108-05-4 Vinyl Acetate | 10 U | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 Bromodichloromethane . . . | 5 U | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 1,2-Dichloropropane | 5 U | | |
| 10061-01-5 cis-1,3-Dichloropropene . | 5 U | | |
| 79-01-6 Trichloroethene | 5 U | | |
| 124-48-1 Dibromochloromethane . . . | 5 U | | |
| 79-00-5 1,1,2-Trichloroethane . . . | 5 U | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

CHEN HILL ENVIRONMENTAL LABORATORY
2118 RAILROAD AVENUE
REDDING, CA 96001 916-243-1705

60/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-5-88
CLIENT SAMPLE ID : METHOD BLANK
REPORT DATE : 12-13-1988

CLIENT NAME : BEALE PFB
SAMPLE RECEIVED : 4/4
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : N/A
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 12-5-88

| | | | |
|-------|--------------------------|----------------------|-----------------------------|
| 1300U | chloroethane | 630U | dibromochloromethane |
| 1300U | bromoethane | 630U | 1,1,2-trichloroethane |
| 1300U | vinyl chloride | 630U | benzene |
| 1300U | chloroethane | 630U | trans-1,3-dichloropropene |
| 630U | ethylene chloride | 1300U | 2-chloroethyl vinyl ether |
| 1300U | acetone | 630U | bromoforn |
| 630U | carbon disulfide | 1300U | 4-methyl-2-pentanone |
| 630U | 1,1-dichloroethene | 1300U | mesanone |
| 630U | 1,1-dichloroethane | 630U | 1,1,2,2-tetrachloroethane |
| 630U | trans-1,2-dichloroethene | 630U | tetrachloroethene |
| 630U | chloroform | 630U | toluene |
| 630U | 1,2-dichloroethane | 630U | chlorobenzene |
| 1300U | 2-butanone | 630U | ethylbenzene |
| 630U | 1,1,1-trichloroethane | 630U | styrene |
| 630U | carbon tetrachloride | 630U | xylenes (o+m) |
| 1300U | vinyl acetate | 630U | xylene (p) |
| 630U | dibromochloromethane | SURROGATE % RECOVERY | |
| 630U | 1,2-dichloropropane | 93 | 1,2-dichloroethane-d4 (SS1) |
| 630U | cis-1,3-dichloropropene | 99 | toluene-d8 (SS2) |
| 630U | trichloroethene | 67 | bromofluorobenzene (SS3) |

RESULTS UNITS : ug/kg (micrograms per kilogram)

u = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2718 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : R8 12-5-88 2
CLIENT SAMPLE ID : METHOD BLANK 12-5-88 2
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-5-88

| | |
|-------------------------------|---------------------------------|
| 1300U chloroethane | 630U dibromochloroethane |
| 1300U bromoethane | 630U 1,1,2-trichloroethane |
| 1300U vinyl chloride | 630U benzene |
| 1300U chloroethane | 630U trans-1,3-dichloropropene |
| 610J methylene chloride | 1300U 2-chloroethyl vinyl ether |
| 1300U acetone | 630U bromoform |
| 630U carbon disulfide | 1300U 4-methyl-2-pentanone |
| 630U 1,1-dichloroethene | 1300U 2-hexanone |
| 630U 1,1-dichloroethane | 630U 1,1,2,2-tetrachloroethane |
| 630U trans-1,2-dichloroethene | 630U tetrachloroethene |
| 630U chloroform | 630U toluene |
| 630U 1,2-dichloroethane | 630U chlorobenzene |
| 1300U 2-butanone | 630U ethylbenzene |
| 630U 1,1,1-trichloroethane | 630U styrene |
| 630U carbon tetrachloride | 630U xylenes (ota) |
| 1300U vinyl acetate | 630U xylene (p) |
| 630U bromodichloromethane | SURROGATE 1 RECOVERY |
| 630U 1,2-dichloropropane | 91 1,2-dichloroethane-d4 (SS1) |
| 630U cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 630U trichloroethene | 88 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian H. H. H.

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



ORGANICS ANALYSIS DATA SHEET

atory Name: CH2M Hill
Lab Sample ID: B1207881
Client Sample ID: VCLKS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 12/07/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 3 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 16 | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 97 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| -01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 75-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form 1

CH2MHILL

Redding
Environmental Laboratory

F-456

Railroad Avenue, P O Box 2088
Redding, California 96001

916 243 5831

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBKLS2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V12396 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: B12088B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: ABVO001910

Level: (low/med) LOW Date Received: 12/08/88

% Moisture: not dec. 0 Date Analyzed: 12/08/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/KG</u> | Q |
|------------|----------------------------|------------------------------------------------------|----|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 4 | BJ |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylenes (total) | 5 | U |

87 Rev.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Sample ID: B1209881
 Client Sample ID: VBLKS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 12/09/88
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 2 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 19 | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 95 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 78-01-6 | Trichloroethene | 5 U | | | |
| 48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

BE

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-14-88
CLIENT SAMPLE ID : METHOD BLANK 12-14-88
REPORT DATE : 01-22-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : WATER

DATE SAMPLED : 11-30-88
DATE EXTRACTED :
DATE ANALYSED : 12-14-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | SU dibromochloromethane |
| 10U bromomethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 6 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 7J acetone | SU bromoform |
| 4J carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE % RECOVERY |
| SU 1,2-dichloropropane | 97 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| SU trichloroethene | 100 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2212 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : PB 12-15-88
CLIENT SAMPLE ID : METHOD PLANN 10-13-88
REPORT DATE : 01-27-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : N/A
SAMPLE TYPE : WATER

DATE SAMPLED : N/A
DATE EXTRACTED : N/A
DATE ANALYSED : 12-15-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 7 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 6U acetone | 5U bromoform |
| 3U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethane | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 15 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+s) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 1 RECOVERY |
| 5U 1,3-dichloropropane | 99 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 99 toluene-d8 (SS1) |
| 5U trichloroethene | 97 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

3 = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-16-88
CLIENT SAMPLE ID : METHOD BLANK 12-16-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-16-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloromethane |
| 10U bromomethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 93 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 98 toluene-d8 (SS2) |
| 5U trichloroethene | 101 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : R9 12-16-88
CLIENT SAMPLE ID : METHOD BLANK 12-15-88
REPORT DATE : 01-23-1989

CLIENT NAME : 9EAL AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-16-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | 5U dibromochloromethane |
| 10U bromomethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5J ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 1 RECOVERY |
| 5U 1,2-dichloropropane | 92 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 98 toluene-d8 (SS2) |
| 5U trichloroethene | 97 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCM HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-16-89
CLIENT SAMPLE ID : METHOD BLANK 12-16-89
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHCM HILL/SAC
SAMPLE RECEIVED : 12-6-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-18-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethane | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethane | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE & RECOVERY |
| SU 1,2-dichloropropane | 94 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 98 toluene-d8 (SS2) |
| SU trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCM HILL ENVIRONMENTAL LABORATORY
2216 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-19-88
CLIENT SAMPLE ID : METHOD BLANK 12-19-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHCM HILL/S4C
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-8-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloromethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 3J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 9J acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 93 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 95 toluene-d8 (SS2) |
| SU trichloroethene | 94 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEM HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-247-1705

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-17-88
CLIENT SAMPLE ID : METHOD BLANK 12-19-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHEM HILL/SAC
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-9-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | SU dibromochloromethane |
| 10U bromomethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 13 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+s) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 96 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 94 toluene-d8 (SS2) |
| SU trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDLANDS CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-20-88
CLIENT SAMPLE ID : METHOD BLANK 12-20-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-20-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloromethane |
| 24 bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| 3J carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 87 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 95 toluene-d8 (SS2) |
| SU trichloroethene | 92 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RP 12-21-89
CLIENT SAMPLE ID : METHOD BLANK 12-21-89
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL 'SAC
SAMPLE RECEIVED : 12-10-89
SAMPLE TYPE : SOIL/SEDIMENT SOLIDS

DATE SAMPLED : 12-9-88
DATE EXTRACTED :
DATE ANALYSED : 12-21-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 3U ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-ethyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethane |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o-m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SUPROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 97 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 106 toluene-d8 (SS2) |
| SU trichloroethene | 99 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-22-88
CLIENT SAMPLE ID : METHOD BLANK 12-22-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-10-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-8-88
DATE EXTRACTED :
DATE ANALYSED : 12-22-88

| | |
|-----------------------------|---------------------------------|
| 10U chloroethane | 5U dibromochloromethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 4J ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 6J acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-ethyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 5U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 1 RECOVERY |
| 5U 1,2-dichloropropane | 107 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 104 toluene-d8 (SS2) |
| 5U trichloroethene | 103 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCM HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-23-88
CLIENT SAMPLE ID : METHOD BLANK 12-23-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALZ AFB CHCM HILL/SAC
SAMPLE RECEIVED : 12-14-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-13-88
DATE EXTRACTED :
DATE ANALYSED : 12-23-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | SU dibromochloromethane |
| 10U bromomethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 95 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 102 toluene-d8 (SS2) |
| SU trichloroethene | 100 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
2019 RAILROAD AVENUE
FEDDING CA 95001 916-243-1705

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-27-88
CLIENT SAMPLE ID : METHOD BLANK 12-27-88
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CHICK HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-27-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U methylene chloride | 10U 2-chloroethyl vinyl ether |
| 8J acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (ota) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 2 RECOVERY |
| 5U 1,2-dichloropropane | 97 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 95 toluene-d8 (SS2) |
| 5U trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (microgram per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCN HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-29-88
CLIENT SAMPLE ID : METHOD BLANK 12-29-88
REPORT DATE : 01-24-1989

CLIENT NAME : REALE AFB CHCN HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-29-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 8 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 18 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 7J 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 12 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE % RECOVERY |
| SU 1,2-dichloropropane | 93 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 98 toluene-d8 (SS2) |
| SJ trichloroethene | 92 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2019 RAILROAD AVENUE
REDDING CA 96001 916-243-1705

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-29-88
CLIENT SAMPLE ID : METHOD BLANK 12-29-88
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-29-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U acetylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethane | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 2 RECOVERY |
| 5U 1,2-dichloropropane | 83 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 94 toluene-d8 (SS2) |
| 5U trichloroethene | 100 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
1119 RAILROAD AVENUE
FERRIS, CA 94601 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RR 12-34-88
CLIENT SAMPLE ID : METHOD PL008 12-2-88
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHICK HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 12-21-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURFOGATE 3 RECOVERY |
| SU 1,2-dichloropropane | 84 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 106 toluene-d3 (SS2) |
| SU trichloroethene | 120 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

* = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: L01049B1
Client Sample ID: VBLKSL

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/04/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|----------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 3 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride . . . | 5 U | | Toluene-d8 - SS | 99 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane . . . | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 75-87-5 | 1,2-Dichloropropane . . . | 5 U | | | |
| 1-01-5 | cis-1,3-Dichloropropene . | 5 U | | | |
| 75-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane . . . | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

36



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: Y0109981
Client Sample ID: VBLKSM

Concentration: MED
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/09/89
Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|-----------------------------|-------|---|
| 74-87-3 | Chloromethane | 1300 | U | 71-43-2 | Benzene | 630 | U |
| 74-83-9 | Bromomethane | 1300 | U | 10061-02-6 | trans-1,3-Dichloropropene | 630 | U |
| 75-01-4 | Vinyl Chloride | 1300 | U | 110-75-8 | 2-Chloroethylvinylether . | 1300 | U |
| 75-00-3 | Chloroethane | 1300 | U | 75-25-2 | Bromoform | 630 | U |
| 75-09-2 | Methylene Chloride | 630 | U | 591-78-6 | 2-Hexanone | 1300 | U |
| 67-64-1 | Acetone | 1300 | U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 1300 | U |
| 75-15-0 | Carbon Disulfide | 630 | U | 127-18-4 | Tetrachloroethene | 630 | U |
| 75-35-4 | 1,1-Dichloroethene | 630 | U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 630 | U |
| 75-34-3 | 1,1-Dichloroethane | 630 | U | 108-88-3 | Toluene | 630 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 630 | U | 108-90-7 | Chlorobenzene | 630 | U |
| 67-66-3 | Chloroform | 630 | U | 100-41-4 | Ethylbenzene | 630 | U |
| 107-06-2 | 1,2-Dichloroethane | 630 | U | 100-42-5 | Styrene | 630 | U |
| 78-93-3 | 2-Butanone | 1300 | U | 1330-20-7 | Xylenes (total) | 630 | U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 630 | U | | | | |
| 56-23-5 | Carbon Tetrachloride | 630 | U | | Toluene-d8 - SS | 110 | |
| 108-05-4 | Vinyl Acetate | 1300 | U | | 1,4-Bromofluorobenzene - SS | 100 | |
| 75-27-4 | Bromodichloromethane | 630 | U | | 1,2-Dichloroethane-d4 - SS | 100 | |
| 78-87-5 | 1,2-Dichloropropane | 630 | U | | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 630 | U | | | | |
| 79-01-6 | Trichloroethene | 630 | U | | | | |
| 124-48-1 | Dibromochloromethane | 630 | U | | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 630 | U | | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 1-11-89
CLIENT SAMPLE ID : METHOD BLANK 1-11-89
REPORT DATE : 01-12-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : N/A
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : N/A
DATE EXTRACTED : N/A
DATE ANALYSED : 1-11-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 5 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE & RECOVERY |
| SU 1,2-dichloropropane | 99 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| SU trichloroethene | 101 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEN HILL ENVIRONMENTAL LABORATORY
2215 FAIRFAX AVENUE
FEDDINS CA 96001 916-243-1733

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 98 1-17-97
CLIENT SAMPLE ID : MET400 BLANK 1-17-97
REPORT DATE : 01-25-1997

CLIENT NAME : BEALE AFB CHEN HILL FAC
SAMPLE RECEIVED :
SAMPLE TYPE : WATER

DATE SAMPLED :
DATE EXPECTED :
DATE ANALYSED : 1-17-97

| | |
|-----------------------------|--------------------------------|
| 100 chloroethane | 50 dibromochloroethane |
| 100 bromoethane | 50 1,1,2-trichloroethane |
| 100 vinyl chloride | 50 benzene |
| 100 chloroethane | 50 trans-1,2-dichloropropene |
| 10 ethylene chloride | 100 2-chloroethyl vinyl ether |
| 100 acetone | 50 bromoform |
| 50 carbon disulfide | 100 4-ethyl-2-pentanone |
| 50 1,1-dichloroethene | 100 2-hexanone |
| 50 1,1-dichloroethane | 50 1,1,2,2-tetrachloroethane |
| 50 trans-1,2-dichloroethene | 50 tetrachloroethane |
| 50 chloroform | 50 toluene |
| 50 1,2-dichloroethane | 50 chlorobenzene |
| 100 2-butanone | 50 ethylbenzene |
| 50 1,1,1-trichloroethane | 50 styrene |
| 50 carbon tetrachloride | 50 xylene (o) |
| 100 vinyl acetate | 50 xylene (c) |
| 50 bromodichloroethane | SUBSTRATE 1 RESIDUAL |
| 50 1,2-dichloropropane | 95 1,2-dichloroethane-d4 (SS1) |
| 50 cis-1,2-dichloropropene | 102 toluene-d8 (SS2) |
| 40 trichloroethane | 101 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCM HILL ENVIRONMENTAL LABORATORY
2213 RAILROAD AVENUE
REDDING, CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : PR 1-15-89
CLIENT SAMPLE ID : METHOD BLANK 1-15-89
REPORT DATE : 01-25-1989

CLIENT NAME : BEALE AFB CHCM HILL/SAC
SAMPLE RECEIVED : 1-11-89
SAMPLE TYPE : WATER

DATE SAMPLED : 1-10-89
DATE EXTRACTED :
DATE ANALYSED : 1-15-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 9 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 12 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (ota) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 92 1,2-dichloroethane-d4 (SD1) |
| SU cis-1,2-dichloropropene | 95 toluene-d8 (SS2) |
| SU trichloroethene | 99 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

1 = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: Y01179B1
Client Sample ID: VLKS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/17/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 5 U | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - S3 | 95 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 98 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

BE



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: Y0117982
Client Sample ID: VBLKS2

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/17/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 5 U | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 95 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 95 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 75-01-6 | Trichloroethene | 5 U | | | |
| 48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Hedding
Environmental Laboratory

2218 Railroad Avenue P.O. Box 2088
Hayward, California 94601

F-480

86

CH2M HILL ENVIRONMENTAL LABORATORY
2019 FAIRROAD AVENUE
FEDDING CA 96001 916-242-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LOR REFERENCE NUMBER : 00 1-17-97
CLIENT SAMPLE ID : 4E400 BLANK 1-17-97
REPORT DATE : 01-28-1997

CLIENT NAME : BEALE AFB CH2M HILL-SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 1-17-97

| | |
|-----------------------------|--------------------------------|
| 100 chloroethane | 50 nitrochloroethane |
| 100 bromoethane | 50 1,1,2-trichloroethane |
| 100 vinyl chloride | 50 benzene |
| 100 chloroethane | 50 trans-1,3-dichloropropene |
| 5 methylene chloride | 100 2-chloroethyl vinyl ether |
| 11 acetone | 50 bromoform |
| 43 carbon disulfide | 100 4-ethyl-2-pentanone |
| 50 1,1-dichloroethene | 100 2-hexanone |
| 50 1,1-dichloroethane | 50 1,1,2,2-tetrachloroethane |
| 50 trans-1,2-dichloroethene | 50 tetrachloroethane |
| 50 chloroform | 50 toluene |
| 50 1,2-dichloroethane | 50 chlorobenzene |
| 100 2-butanone | 50 ethylbenzene |
| 50 1,1,1-trichloroethane | 50 styrene |
| 50 carbon tetrachloride | 50 xylene (o) |
| 100 vinyl acetate | 50 xylene (p) |
| 50 bromodichloroethane | SUBSTRATE % RECOVER |
| 50 1,2-dichloropropane | 98 1,2-dichloroethane-d4 (SS1) |
| 50 cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 50 trichloroethene | 104 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

I = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEM HILL ENVIRONMENTAL LABORATORY
2012 RAILROAD AVENUE
REDDING CA 96001 916-247-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RP 1-13-87
CLIENT SAMPLE ID : METHOD 810M 1-19-87
REPORT DATE : 01-26-1989

CLIENT NAME : BEALE AFB CHEM HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 1-19-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethane |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 2 RECOVERY |
| SU 1,2-dichloropropane | 94 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| SU trichloroethene | 103 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBKLS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V12589 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y01199B2

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBVO003115

Level: (low/med) LOW Date Received: 01/19/89

% Moisture: not dec. 0 Date Analyzed: 01/19/89

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/KG</u> | Q |
|------------|---------------------------------|------------------------------------------------------|----|
| 74-87-3 | -----Chloromethane | 10 | U |
| 74-83-9 | -----Bromomethane | 10 | U |
| 75-01-4 | -----Vinyl Chloride | 10 | U |
| 75-00-3 | -----Chloroethane | 10 | U |
| 75-09-2 | -----Methylene Chloride | 14 | B |
| 67-64-1 | -----Acetone | 3 | BJ |
| 75-15-0 | -----Carbon Disulfide | 5 | U |
| 75-35-4 | -----1,1-Dichloroethene | 5 | U |
| 75-34-3 | -----1,1-Dichloroethane | 5 | U |
| 540-59-0 | -----1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | -----Chloroform | 5 | U |
| 107-06-2 | -----1,2-Dichloroethane | 5 | U |
| 78-93-3 | -----2-Butanone | 10 | U |
| 71-55-6 | -----1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | -----Carbon Tetrachloride | 5 | U |
| 108-05-4 | -----Vinyl Acetate | 10 | U |
| 75-27-4 | -----Bromodichloromethane | 5 | U |
| 78-87-5 | -----1,2-Dichloropropane | 5 | U |
| 10061-01-5 | -----cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | -----Trichloroethene | 5 | U |
| 124-48-1 | -----Dibromochloromethane | 5 | U |
| 79-00-5 | -----1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | -----Benzene | 5 | U |
| 10061-02-6 | -----trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | -----Bromoform | 5 | U |
| 591-78-6 | -----2-Hexanone | 10 | U |
| 108-10-1 | -----4-Methyl-2-Pentanone | 10 | U |
| 127-18-4 | -----Tetrachloroethene | 5 | U |
| 79-34-5 | -----1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-3 | -----Toluene | 5 | U |
| 108-90-7 | -----Chlorobenzene | 5 | U |
| 100-41-4 | -----Ethylbenzene | 5 | U |
| 100-42-5 | -----Styrene | 5 | U |
| 1330-20-7 | -----Xylenes (total) | 5 | U |
| 110-75-8 | -----2-Chloroethylvinyl ether | 10 | U |

NO.

CH2M HILL-ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 1-24-89
CLIENT SAMPLE ID : METHOD BLANK 1-24-89
REPORT DATE : 01-26-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : WATER

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 1-24-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 22 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 20 acetone | 5U bromoform |
| 3J carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 8J 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 2 RECOVERY |
| 5U 1,2-dichloropropane | 99 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 3J trichloroethene | 105 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-01-26-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/26/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | UG/KG | | CAS Number | | UG/KG |
|------------|--------------------------------------|-------|----|------------|---------------------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-00-3 | Chloroethane | 10 | U | 591-78-6 | 2-Hexanone | 10 U |
| 75-09-2 | Methylene Chloride | 6 | B | 108-10-1 | 4-Methyl-2-Pentanone | 10 U |
| 67-64-1 | Acetone | 10 | BU | 127-18-4 | Tetrachloroethene | 5 U |
| 75-15-0 | Carbon Disulfide | 5 | U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U | 108-88-3 | Toluene | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-90-7 | Chlorobenzene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 67-66-3 | Chloroform | 5 | U | 100-42-5 | Styrene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 78-93-3 | 2-Butanone | 10 | U | | | |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U | | Toluene-d8 - SS | 99 |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | 1,4-Bromofluorobenzene - SS | 110 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 | U | | | |
| 78-87-5 | 1,2-Dichloropropane | 5 | U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U | | | |
| 79-01-6 | Trichloroethene | 5 | U | | | |
| 124-48-1 | Dibromochloromethane | 5 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U | | | |

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

CH2MHILL

Redding
Environmental Laboratory

F-485

Railroad Avenue, P. O. Box 2088
Redding, California 96001

916.243.5831



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-05-15-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 05/15/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|----|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 5 | U | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 4 | BJ | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 | U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | Toluene-d8 - SS | 94 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 97 |
| 75-27-4 | Bromodichloromethane | 5 | U | | 1,2-Dichloroethane-d4 - SS | 98 |
| 78-87-5 | 1,2-Dichloropropane | 5 | U | | | |
| 107-01-5 | cis-1,3-Dichloropropene . . | 5 | U | | | |
| 75-00-6 | Trichloroethene | 5 | U | | | |
| 124-48-1 | Dibromochloromethane | 5 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2MHILL

Redding
Environmental Laboratory

F-486

Redwood Avenue, P O Box 2088
Redding, California 96001

25



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-05-16-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 05/16/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 5 U | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 90 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 94 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 93 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

Wood Avenue, P. O. Box 2088
Redding, California 96001

F-487

25



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Sample ID: RB-05-17-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent-Moisture:

Date Extracted:
Date Analyzed: 05/17/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 5 U | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 11 | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 6 J | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 88 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 107-01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 75-06-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: A12058B1
Client Sample ID: VBKWK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 12/05/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 2 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 98 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : WATER BLANK (12/14/88)
REPORT DATE : 12-28-1988

CLIENT NAME :
METHOD : 624
BLANK ID : 98M2V01931
SAMPLE TYPE : WATER

DATE SAMPLED :
DATE RECEIVED :
DATE EXTRACTED :
DATE ANALYSED : 12/14/88

| | | | |
|-------|----------------------------|----------------------|-----------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| ✓ 14 | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| ✓ 3 J | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | ✓ 1 J | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloroethane | SURROGATE & RECOVERY | |
| 5 U | 1,2-dichloropropane | 91 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,2-dichloropropene | 101 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 101 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

. = indicates an estimated trace value.

ANALYST :



APPROVED BY :



WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : WATER BLANK (12/15/88)
REPORT DATE : 12-28-1988

CLIENT NAME :
METHOD : 624
BLANK ID : 88M2VQ1993
SAMPLE TYPE : WATER

DATE SAMPLED :
DATE RECEIVED :
DATE EXTRACTED :
DATE ANALYSED : 12/15/89

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 3 J | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE % RECOVERY

95 1,2-dichloroethane-d4 (SS1)
99 toluene-d8 (SS2)
97 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
. = indicates an estimated trace value.

ANALYST :

APPROVED BY :

7700 LORRAINE AV. #105
STOCKTON CA 95210 209 357-3405

CLIENT SAMPLE ID : WATER BLANK
REPORT DATE : 01-10-1999

/15/88)

CLIENT NAME : CH2M HILL
METHOD : 8240
ID : 89M2V02017
SAMPLE TYPE : WATER

DATE SAMPLED : N/A
DATE RECEIVED : N/A
DATE EXTRACTED : N/A
DATE ANALYSED : 12/16/88

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 1 J | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylenes (o-m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE & RECOVERY
97 1,2-dichloroethane-d4 (SS1)
99 toluene-d8 (SS2)
99 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

J = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

. = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : P. F. Cawley

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : WATER BLANK
REPORT DATE : 01-10-1989

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 98W2V02038
SAMPLE TYPE : WATER

DATE SAMPLED : N/A
DATE RECEIVED : N/A
DATE EXTRACTED : N/A
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 1 J | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 4 J | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 2 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 7 J | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | SURROGATE % RECOVERY |
| 5 U | 1,2-dichloropropane | 87 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 101 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 98 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : P.F. Carney

WISCONSIN ANALYTICS
20 LORRAINE AV. #105
MILWAUKEE, WI 53210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/18 BLANK
REPORT DATE : 12-31-1988

TEST NAME : -
METHOD : 8240
SAMPLE ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/18/88

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-ethyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromochloromethane | | |
| 5 U | trans-1,2-dichloropropene | | |
| 5 U | trans-1,3-dichloropropene | | |
| 5 U | tetrachloroethene | | |

SURROGATE & RECOVERY

| | |
|-----|-----------------------------|
| 109 | 1,2-dichloroethane-d4 (SS1) |
| 95 | toluene-d8 (SS2) |
| 93 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

EST : indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/19 BLANK
REPORT DATE : 12-31-1988

CLIENT NAME : -
METHOD : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 1 J | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 5 U | 1,2-dichloropropane | 111 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 99 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 99 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carey

WESTON ANALYTICS
1720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : WATER BLANK
REPORT DATE : 01-10-1989

CLIENT NAME : CH2M HILL
METHOD : 9240
BLANK ID : 88M2V02038
SAMPLE TYPE : WATER

DATE SAMPLED : N/A
DATE RECEIVED : N/A
DATE EXTRACTED : N/A
DATE ANALYSED : 12/19/88

10 U chloromethane
10 U bromomethane
10 U vinyl chloride
10 U chloroethane
1 J ethylene chloride
4 J acetone
5 U carbon disulfide
5 U 1,1-dichloroethene
5 U 1,1-dichloroethane
5 U 1,2-dichloroethene (total)
5 U chloroform
5 U 1,2-dichloroethane
10 U 2-butanone
5 U 1,1,1-trichloroethane
5 U carbon tetrachloride
10 U vinyl acetate
5 U bromodichloromethane
5 U 1,2-dichloropropane
5 U cis-1,3-dichloropropene
5 U trichloroethene

5 U dibromochloromethane
5 U 1,1,2-trichloroethane
5 U benzene
5 U trans-1,3-dichloropropene
10 U 2-chloroethyl vinyl ether
5 U bromoform
2 J 4-methyl-2-pentanone
7 J 2-hexanone
5 U 1,1,2,2-tetrachloroethane
5 U tetrachloroethene
5 U toluene
5 U chlorobenzene
5 U ethylbenzene
5 U styrene
5 U xylenes (o+m)
5 U xylene (p)
SURROGATE & RECOVERY
87 1,2-dichloroethane-d4 (SS1)
101 toluene-d8 (SS2)
98 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : P. F. Loney

WESTON ANALYTICS
720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/19 BLANK
REPORT DATE : 12-30-1988

CLIENT NAME : -
METHOD : 9240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylenes (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | SURROGATE % RECOVERY |
| 5 U | 1,2-dichloropropane | 111 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 98 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 89 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

! = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/20 BLANK
REPORT DATE : 12-30-1988

CLIENT NAME : -
METHOD : 9240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/20/88

| | | | |
|------|--------------------------|------|-----------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethane (cis) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 5 U | 1,2-dichloropropane | 112 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 101 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 98 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.
- indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Loney

WESTON ANALYTICS
1133 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/20 BLANK
REPORT DATE : 01-13-1989

CLIENT NAME : -
METHOD : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/20/88

| | |
|--------------------------------|--------------------------------|
| 10 U chloroethane | 5 U dibromochloroethane |
| 10 U bromoethane | 5 U 1,1,2-trichloroethane |
| 10 U vinyl chloride | 5 U benzene |
| 10 U chloroethane | 5 U trans-1,3-dichloropropene |
| 5 U ethylene chloride | 10 U 2-chloroethyl vinyl ether |
| 10 U acetone | 5 U bromoform |
| 5 U carbon disulfide | 10 U 4-methyl-2-pentanone |
| 5 U 1,1-dichloroethene | 10 U 2-hexanone |
| 5 U 1,1-dichloroethane | 5 U 1,1,2,2-tetrachloroethane |
| 5 U 1,2-dichloroethene (total) | 5 U tetrachloroethene |
| 5 U chloroform | 5 U toluene |
| 5 U 1,2-dichloroethane | 5 U chlorobenzene |
| 10 U 2-butanone | 5 U ethylbenzene |
| 5 U 1,1,1-trichloroethane | 5 U styrene |
| 5 U carbon tetrachloride | 5 U xylenes (o-m-p) |
| 10 U vinyl acetate | 5 U xylene (p) |
| 5 U dibromochloroethane | SURROGATE & RECOVER |
| 5 U 1,2-dichloropropane | 12 1,2-dichloroethane-d4 (SS1) |
| 5 U cis-1,3-dichloropropene | 10 toluene-d8 (SS2) |
| 5 U trichloroethene | 32 bromofluorobenzene (SS3) |

RESULTS UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

U : indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carney

7723 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

SC 75 10.4 100 0.05-0.10 ANALYSIS

LAB REFERENCE NUMBER: WATER BLANK
CLIENT SAMPLE ID: 12.21 BLANK
REPORT DATE: 01-13-1999

CLIENT NAME: -
PHOD: 8240
IK ID: -
SAMPLE TYPE: WATER

DATE SAMPLED: -
DATE RECEIVED: -
DATE EXTRACTED: -
DATE ANALYSED: 12/21/88

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromoethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 2 J | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethane | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethane (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o-) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | propionchloroethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethane | | |

SURROGATE & RECOVERY:

| | |
|-----|-----------------------------|
| 104 | 1,2-dichloroethane-d4 (SS1) |
| 95 | toluene-d8 (SS2) |
| 95 | bromofluorobenzene (SS3) |

RESULT UNITS: ug/l (micrograms per litre)

DILUTION FACTOR: 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E = indicates an estimated trace value.

ANALYST: ALI

APPROVED BY: R. F. Loney

WESTON ANALYTICS
1730 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : WATER BLANK (12/21/99)
REPORT DATE : 01-13-1999

CLIENT NAME :
METHOD : 824
BLANK ID : 98M2V02071
SAMPLE TYPE : WATER -

DATE SAMPLED :
DATE RECEIVED :
DATE EXTRACTED :
DATE ANALYSED : 12/21/99

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 6 J | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorocyclohexene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE & RECOVERY

98 1,2-dichloroethane-d4 (SS1)
101 toluene-d8 (SS2)
97 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

'U' : indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

'.' : indicates an estimated trace value.

ANALYST : _____

APPROVED BY : R. F. Carney

7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

STOCKTON WATER TREATMENT PLANT

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/27 BLANK
REPORT DATE : 01-06-1989

CLIENT NAME : -
METHOD : 8240
NK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/27/88

| | | | |
|-------|----------------------------|----------------------|-----------------------------|
| 10 U | chloroethane | 5 U | chloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| ✓ 5 U | acetone | 5 U | bromoforn |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromochloromethane | SURROGATE & RECOVERY | |
| 5 U | 1,2-dichloropropane | 98 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 100 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 99 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
+ = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : P. F. Loney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-2405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/29 BLANK
REPORT DATE : 01-13-1989

CLIENT NAME : -
METHOD : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/29/88

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,2-dichloropropene |
| 10 | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o-p) |
| 10 U | vinyl acetate | 5 U | xylene (m) |
| 5 U | bromodichloroethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,2-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE & RECOVERY

85 1,2-dichloroethane-d4 (SS1)
86 toluene-d3 (SS2)
84 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

. = indicates an estimated trace value.

ANALYST : ALI'

APPROVED BY : R.F. Loney

REDIUM ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/30 BLANK
REPORT DATE : 01-06-1989

CLIENT NAME : -
HOC : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/30/82

| | | | |
|------|----------------------------|------|-----------------------------|
| 10 U | chloroethane | 5 U | dicromochloroethane |
| 10 U | bromoethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylen chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xlenes (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromochloroethane | | SURROGATE X RECOVERY |
| 5 U | 1,2-dichloropropane | 92 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 100 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 96 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : P.F. Loney

WESTON ANALYTICS
1720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 12/31 BLANK
REPORT DATE : 01-13-1999

CLIENT NAME : -
METHOD : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 12/31/88

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o-m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloroethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE & RECOVERY
92 1,2-dichloroethane-d4 (SS1)
99 toluene-d8 (SS2)
96 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

• = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Cunnery

WESTON ANALYTICS
7722 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 01/03 BLANK
REPORT DATE : 01-14-1989

NT NAME :
METHOD : 824C
BLANK ID :
SAMPLE TYPE : WATER

DATE SAMPLED :
DATE RECEIVED :
DATE EXTRACTED :
DATE ANALYSED : 01/03/89

| | | | |
|------|----------------------------|------|-----------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 5 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethene (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylenes (o-p) |
| 10 U | vinyl acetate | 5 U | xylene m |
| 5 U | bromochloropropane | | SUPPLEMENT & RECOVERY |
| 5 U | 1,2-dichloropropane | 75 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 35 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 100 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

. = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
. = indicates an estimated trace value.

ANALYST : AL1

APPROVED BY : R.F. Loney

WESTON ANALYTICS
7720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : WATER BLANK
CLIENT SAMPLE ID : 01/04 BLANK
REPORT DATE : 01-14-1999

CLIENT NAME : -
METHOD : 8240
BLANK ID : -
SAMPLE TYPE : WATER

DATE SAMPLED : -
DATE RECEIVED : -
DATE EXTRACTED : -
DATE ANALYSED : 01/04/99

| | | | |
|------|----------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 2 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethane | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethane (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | isobutane | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (o) |
| 5 U | bromodichloroethane | | SUPPLEMENT & RECOVERY |
| 5 U | 1,2-dichloropropane | 99 | 1,2-dichloroethane-94 SS |
| 5 U | cis-1,3-dichloropropene | 95 | toluene-93 SS2 |
| 5 U | trichloroethene | 95 | chlorofluorobenzene SS3 |

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E = indicates an estimated trace value.

ANALYST

F-507

APPROVED BY :

R. F. Laney

METHOD BLANKS

Semivolatile Organic Compounds (SW8270)

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-13-88
CLIENT SAMPLE ID : SOIL METHOD BLANK
REPORT DATE : 12-30-1988

IT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-13-88
DATE ANALYSED : 12-27-88

| | |
|-----------------------------------|----------------------------------|
| 330U n-nitroso-diethylamine | 330U dibenzofuran |
| 330U phenol | 330U 2,4-dinitrotoluene |
| 330U aniline | 330U 2,6-dinitrotoluene |
| 330U bis(2-chloroethyl) ether | 330U diethyl phthalate |
| 330U 2-chlorophenol | 330U 4-chlorophenyl phenyl ether |
| 330U 1,3-dichlorobenzene | 330U fluorene |
| 330U 1,4-dichlorobenzene | 1600U 4-nitroaniline |
| 330U benzyl alcohol | 1600U 4,6-dinitro-2-methylphenol |
| 330U 1,2-dichlorobenzene | 330U n-nitrosodiphenylamine |
| 330U 2-methylphenol | 330U 4-bromophenyl phenyl ether |
| 330U bis(2-chloroisopropyl) ether | 330U hexachlorobenzene |
| 330U 4-methylphenol | 1600U pentachlorophenol |
| 330U n-nitroso-di-n-propylamine | 330U phenanthrene |
| 330U hexachloroethane | 330U anthracene |
| 330U nitrobenzene | 330U di-n-butyl phthalate |
| 330U isophorone | 330U fluoranthene |
| 330U 2-nitrophenol | 1600U benzidine |
| 330U 2,4-diethylphenol | 330U pyrene |
| 1600U benzoic acid | 330U butyl benzyl phthalate |
| 330U bis(2-chloroethoxy) methane | 660U 3,3'-dichlorobenzidine |
| 330U 2,4-dichlorophenol | 330U benzo(a)anthracene |
| 330U 1,2,4-trichlorobenzene | 330U bis(2-ethylhexyl)phthalate |
| 330U naphthalene | 330U chrysene |
| 330U 4-chloroaniline | 330U di-n-octyl phthalate |
| 330U hexachlorobutadiene | 330U benzo(b)fluoranthene |
| 330U 4-chloro-3-methylphenol | 330U benzo(k)fluoranthene |
| 330U 2-methylnaphthalene | 330U benzo(a)pyrene |
| 330U hexachlorocyclopentadiene | 330U indeno(1,2,3-cd)pyrene |
| 330U 2,4,6-trichlorophenol | 330U dibenz(a,h)anthracene |
| 1600U 2,4,5-trichlorophenol | 330U benzo(g,h,i)perylene |
| 330U 2-chloronaphthalene | SURROGATE 1 RECOVERY |
| 1600U 2-nitroaniline | 54 2-fluorophenol (SS1) |
| 330U diethyl phthalate | 81 phenol-d5 (SS2) |
| 330U acenaphthylene | 73 nitrobenzene-d5 (SS3) |
| 1600U 3-nitroaniline | 73 2-fluorobiphenyl |
| 330U acenaphthene | 55 2,4,6-tribromophenol (SS5) |
| 1600U 2,4-dinitrophenol | 78 p-terphenyl-d14 (SS6) |
| 1600U 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : *Brian Jones*

F-508

APPROVED BY : _____

The information shown on this sheet is test data only. Analysis or interpretation is intended or implied.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM

Concentration: LOW

Date Extracted: 12/20/88

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 11-29-88
CLIENT SAMPLE ID : SOIL METHOD BLANK
REPORT DATE : 01-04-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 11-29-88
DATE ANALYSED : 12-29-88

| | | | |
|-------|------------------------------|-------|-----------------------------|
| 330U | n-nitroso-diethylamine | 330U | dibenzofuran |
| 1200 | phenol | 330U | 2,4-dinitrotoluene |
| 330U | aniline | 330U | 2,6-dinitrotoluene |
| 330U | bis(2-chloroethyl) ether | 330U | diethyl phthalate |
| 330U | 2-chlorophenol | 330U | 4-chlorophenyl phenyl ether |
| 330U | 1,3-dichlorobenzene | 330U | fluorene |
| 330U | 1,4-dichlorobenzene | 1600U | 4-nitroaniline |
| 330U | benzyl alcohol | 1600U | 4,6-dinitro-2-methylphenol |
| 330U | 1,2-dichlorobenzene | 330U | n-nitrosodiphenylamine |
| 330U | 2-methylphenol | 330U | 4-bromophenyl phenyl ether |
| 330U | bis(2-chloroisopropyl) ether | 330U | hexachlorobenzene |
| 330U | 4-methylphenol | 1600U | pentachlorophenol |
| 330U | n-nitroso-di-n-propylamine | 330U | phenanthrene |
| 330U | hexachloroethane | 330U | anthracene |
| 330U | nitrobenzene | 330U | di-n-butyl phthalate |
| 330U | isophorone | 330U | fluoranthene |
| 330U | 2-nitrophenol | 1600U | benzidine |
| 330U | 2,4-dimethylphenol | 330U | pyrene |
| 1600U | benzoic acid | 330U | butyl benzyl phthalate |
| 330U | bis(2-chloroethoxy) methane | 660U | 3,3'-dichlorobenzidine |
| 330U | 2,4-dichlorophenol | 330U | benzo(a)anthracene |
| 330U | 1,2,4-trichlorobenzene | 330U | bis(2-ethylhexyl)phthalate |
| 330U | naphthalene | 330U | chrysene |
| 330U | 4-chloroaniline | 330U | di-n-octyl phthalate |
| 330U | hexachlorobutadiene | 330U | benzo(b)fluoranthene |
| 330U | 4-chloro-3-methylphenol | 330U | benzo(k)fluoranthene |
| 330U | 2-methylnaphthalene | 330U | benzo(a)pyrene |
| 330U | hexachlorocyclopentadiene | 330U | indeno(1,2,3-cd)pyrene |
| 330U | 2,4,6-trichlorophenol | 330U | dibenz(a,h)anthracene |
| 1600U | 2,4,5-trichlorophenol | 330U | benzo(g,h,i)perylene |
| 330U | 2-chloronaphthalene | | SURROGATE % RECOVERY |
| 1600U | 2-nitroaniline | 35 | 2-fluorophenol (SS1) |
| 330U | diethyl phthalate | 47 | phenol-d5 (SS2) |
| 330U | acenaphthylene | 45 | nitrobenzene-d5 (SS3) |
| 1600U | 3-nitroaniline | 52 | 2-fluorobiphenyl |
| 330U | acenaphthene | 39 | 2,4,6-tribromophenol (SS5) |
| 1600U | 2,4-dinitrophenol | 59 | p-terphenyl-d14 (SS6) |
| 1600U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Quinn Jones

F-509

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RD 11-29-88
CLIENT SAMPLE ID : SOIL METHOD BLANK
REPORT DATE : 01-04-1989

CLIENT NAME : DEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 11-29-88
DATE ANALYSED : 12-29-88

330U n-nitroso-diethylamine
1200 phenol
330U aniline
330U bis(2-chloroethyl) ether
330U 2-chlorophenol
330U 1,3-dichlorobenzene
330U 1,4-dichlorobenzene
330U benzyl alcohol
330U 1,2-dichlorobenzene
330U 2-methylphenol
330U bis(2-chloroisopropyl) ether
330U 4-methylphenol
330U n-nitroso-di-n-propylamine
330U hexachloroethane
330U nitrobenzene
330U isophorone
330U 2-nitrophenol
330U 2,4-diaethylphenol
1600U benzoic acid
330U bis(2-chloroethoxy) ethane
330U 2,4-dichlorophenol
330U 1,2,4-trichlorobenzene
330U naphthalene
330U 4-chloroaniline
330U hexachlorobutadiene
330U 4-chloro-3-methylphenol
330U 2-methylnaphthalene
330U hexachlorocyclopentadiene
330U 2,4,6-trichlorophenol
1600U 2,4,5-trichlorophenol
330U 2-chloronaphthalene
1600U 2-nitroaniline
330U diethyl phthalate
330U acenaphthylene
1600U 3-nitroaniline
330U acenaphthene
1600U 2,4-dinitrophenol
1600U 4-nitrophenol

330U dibenzofuran
330U 2,4-dinitrotoluene
330U 2,6-dinitrotoluene
330U diethyl phthalate
330U 4-chlorophenyl phenyl ether
330U fluorene
1600U 4-nitroaniline
1600U 4,6-dinitro-2-methylphenol
330U n-nitrosodiphenylamine
330U 4-bromophenyl phenyl ether
330U hexachlorobenzene
1600U pentachlorophenol
330U phenanthrene
330U anthracene
330U di-n-butyl phthalate
330U fluoranthene
1600U benzidine
330U pyrene
330U butyl benzyl phthalate
1600U 3,3'-dichlorobenzidine
330U benzo(a)anthracene
330U bis(2-ethylhexyl)phthalate
330U chrysene
330U di-n-octyl phthalate
330U benzo(b)fluoranthene
330U benzo(k)fluoranthene
330U benzo(a)pyrene
330U indeno(1,2,3-cd)pyrene
330U dibenz(a,h)anthracene
330U benzo(g,h,i)perylene

SURROGATE & RECOVERY

35 2-fluorophenol (SS1)
47 phenol-d5 (SS2)
45 nitrobenzene-d5 (SS3)
52 2-fluorobiphenyl
39 2,4,6-tribromophenol (SS5)
59 p-terphenyl-d14 (SS6)

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

* = indicates an estimated trace value.

ANALYST :

Erica Herra

F-510

APPROVED BY :

The information shown on this sheet is test data

analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 11-29-88
CLIENT SAMPLE ID : SOIL METHOD BLANK
REPORT DATE : 12-30-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 11-29-88
DATE ANALYSED : 12-29-88

| | |
|-----------------------------------|----------------------------------|
| 330U n-nitroso-dimethylamine | 330U dibenzofuran |
| 1200 phenol | 330U 2,4-dinitrotoluene |
| 330U aniline | 330U 2,6-dinitrotoluene |
| 330U bis(2-chloroethyl) ether | 330U diethyl phthalate |
| 330U 2-chlorophenol | 330U 4-chlorophenyl phenyl ether |
| 330U 1,3-dichlorobenzene | 330U fluorene |
| 330U 1,4-dichlorobenzene | 1600U 4-nitroaniline |
| 330U benzyl alcohol | 1600U 4,6-dinitro-2-ethylphenol |
| 330U 1,2-dichlorobenzene | 330U n-nitrosodiphenylamine |
| 330U 2-ethylphenol | 330U 4-bromophenyl phenyl ether |
| 330U bis(2-chloroisopropyl) ether | 330U hexachlorobenzene |
| 330U 4-ethylphenol | 1600U pentachlorophenol |
| 330U n-nitroso-di-n-propylamine | 330U phenanthrene |
| 330U hexachloroethane | 330U anthracene |
| 330U nitrobenzene | 330U di-n-butyl phthalate |
| 330U isophorone | 330U fluoranthene |
| 330U 2-nitrophenol | 1600U benzidine |
| 330U 2,4-diethylphenol | 330U pyrene |
| 1600U benzoic acid | 330U butyl benzyl phthalate |
| 330U bis(2-chloroethoxy) methane | 660U 3,3'-dichlorobenzidine |
| 330U 2,4-dichlorophenol | 330U benzo(a)anthracene |
| 330U 1,2,4-trichlorobenzene | 330U bis(2-ethylhexyl)phthalate |
| 330U naphthalene | 330U chrysene |
| 330U 4-chloroaniline | 330U di-n-octyl phthalate |
| 330U hexachlorobutadiene | 330U benzo(b)fluoranthene |
| 330U 4-chloro-3-ethylphenol | 330U benzo(k)fluoranthene |
| 330U 2-ethylnaphthalene | 330U benzo(a)pyrene |
| 330U hexachlorocyclopentadiene | 330U indeno(1,2,3-cd)pyrene |
| 330U 2,4,6-trichlorophenol | 330U dibenz(a,h)anthracene |
| 1600U 2,4,5-trichlorophenol | 330U benzo(g,h,i)perylene |
| 330U 2-chloronaphthalene | SURROGATE 1 RECOVERY |
| 1600U 2-nitroaniline | 33 2-fluorophenol (SS1) |
| 330U diethyl phthalate | 47 phenol-d5 (SS2) |
| 330U acenaphthylene | 45 nitrobenzene-d5 (SS3) |
| 1600U 3-nitroaniline | 52 2-fluorobiphenyl |
| 330U acenaphthene | 39 2,4,6-tribromophenol (SS3) |
| 1600U 2,4-dinitrophenol | 59 p-terphenyl-d14 (SS4) |
| 1600U 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian J. Jones

F-511

APPROVED BY :

The information shown on this sheet is test data or ..

.. analysis or interpretation is intended or i

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-1-88
CLIENT SAMPLE ID : METHOD BLANK
REPORT DATE : 01-11-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-1-88
DATE ANALYSED : 1-5-89

| | |
|-----------------------------------|----------------------------------|
| 330U n-nitroso-diethylamine | 330U dibenzofuran |
| 1300 phenol | 330U 2,4-dinitrotoluene |
| 330U aniline | 330U 2,6-dinitrotoluene |
| 330U bis(2-chloroethyl) ether | 330U diethyl phthalate |
| 330U 2-chlorophenol | 330U 4-chlorophenyl phenyl ether |
| 330U 1,3-dichlorobenzene | 330U fluorene |
| 330U 1,4-dichlorobenzene | 1600U 4-nitroaniline |
| 330U benzyl alcohol | 1600U 4,6-dinitro-2-methylphenol |
| 330U 1,2-dichlorobenzene | 330U n-nitrosodiphenylamine |
| 330U 2-methylphenol | 330U 4-bromophenyl phenyl ether |
| 330U bis(2-chloroisopropyl) ether | 330U hexachlorobenzene |
| 330U 4-methylphenol | 1600U pentachlorophenol |
| 330U n-nitroso-di-n-propylamine | 330U phenanthrene |
| 330U hexachloroethane | 330U anthracene |
| 330U nitrobenzene | 330U di-n-butyl phthalate |
| 330U isophorone | 330U fluoranthene |
| 330U 2-nitrophenol | 1600U benzidine |
| 330U 2,4-dimethylphenol | 330U pyrene |
| 1600U benzoic acid | 330U butyl benzyl phthalate |
| 330U bis(2-chloroethoxy) methane | 660U 3,3'-dichlorobenzidine |
| 330U 2,4-dichlorophenol | 330U benzo(a)anthracene |
| 330U 1,2,4-trichlorobenzene | 330U bis(2-ethylhexyl)phthalate |
| 330U naphthalene | 330U chrysene |
| 330U 4-chloroaniline | 330U di-n-octyl phthalate |
| 330U hexachlorobutadiene | 330U benzo(b)fluoranthene |
| 330U 4-chloro-3-methylphenol | 330U benzo(k)fluoranthene |
| 330U 2-methylnaphthalene | 330U benzo(a)pyrene |
| 330U hexachlorocyclopentadiene | 330U indeno(1,2,3-cd)pyrene |
| 330U 2,4,6-trichlorophenol | 330U dibenz(a,h)anthracene |
| 1600U 2,4,5-trichlorophenol | 330U benzo(g,h,i)perylene |
| 330U 2-chloronaphthalene | SURROGATE % RECOVERY |
| 1600U 2-nitroaniline | 53 2-fluorophenol (SS1) |
| 330U dimethyl phthalate | 70 phenol-d5 (SS2) |
| 330U acenaphthylene | 63 nitrobenzene-d5 (SS3) |
| 1600U 3-nitroaniline | 70 2-fluorobiphenyl |
| 330U acenaphthene | 55 2,4,6-tribromophenol (SS5) |
| 1600U 2,4-dinitrophenol | 95 p-terphenyl-d14 (SS6) |
| 1600U 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian J. O'Neil

APPROVED BY :

The information shown on this sheet is test data :

analysis or interpretation is intended or

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RD 12-5-88
CLIENT SAMPLE ID : METHOD BLANK
REPORT DATE : 01-12-1989

CLIENT NAME : DEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-5-88
DATE ANALYSED : 1-6-89

| | |
|-----------------------------------|----------------------------------|
| 330U n-nitroso-diethylamine | 330U dibenzofuran |
| 1600 phenol | 330U 2,4-dinitrotoluene |
| 330U aniline | 330U 2,6-dinitrotoluene |
| 330U bis(2-chloroethyl) ether | 330U diethyl phthalate |
| 330U 2-chlorophenol | 330U 4-chlorophenyl phenyl ether |
| 330U 1,3-dichlorobenzene | 330U fluorene |
| 330U 1,4-dichlorobenzene | 1600U 4-nitroaniline |
| 330U benzyl alcohol | 1600U 4,6-dinitro-2-methylphenol |
| 330U 1,2-dichlorobenzene | 330U n-nitrosodiphenylamine |
| 330U 2-methylphenol | 330U 4-bromophenyl phenyl ether |
| 330U bis(2-chloroisopropyl) ether | 330U hexachlorobenzene |
| 330U 4-methylphenol | 1600U pentachlorophenol |
| 330U n-nitroso-di-n-propylamine | 330U phenanthrene |
| 330U hexachloroethane | 330U anthracene |
| 330U nitrobenzene | 330U di-n-butyl phthalate |
| 330U isophorone | 330U fluoranthene |
| 330U 2-nitrophenol | 1600U benzidine |
| 330U 2,4-dimethylphenol | 330U pyrene |
| 1600U benzoic acid | 330U butyl benzyl phthalate |
| 330U bis(2-chloroethoxy) methane | 660U 3,3'-dichlorobenzidine |
| 330U 2,4-dichlorophenol | 330U benzo(a)anthracene |
| 330U 1,2,4-trichlorobenzene | 330U bis(2-ethylhexyl)phthalate |
| 330U naphthalene | 330U chrysene |
| 330U 4-chloroaniline | 330U di-n-octyl phthalate |
| 330U hexachlorobutadiene | 330U benzo(b)fluoranthene |
| 330U 4-chloro-3-methylphenol | 330U benzo(k)fluoranthene |
| 330U 2-methylnaphthalene | 330U benzo(a)pyrene |
| 330U hexachlorocyclopentadiene | 330U indeno(1,2,3-cd)pyrene |
| 330U 2,4,6-trichlorophenol | 330U dibenz(a,h)anthracene |
| 1600U 2,4,5-trichlorophenol | 330U benzo(g,h,i)perylene |
| 330U 2-chloronaphthalene | SURROGATE % RECOVERY |
| 1600U 2-nitroaniline | 56 2-fluorophenol (SS1) |
| 330U dimethyl phthalate | 74 phenol-d5 (SS2) |
| 330U acenaphthylene | 71 nitrobenzene-d5 (SS3) |
| 1600U 3-nitroaniline | 74 2-fluorobiphenyl |
| 330U acenaphthene | 57 2,4,6-tribromophenol (SS5) |
| 1600U 2,4-dinitrophenol | 81 p-terphenyl-d14 (SS6) |
| 1600U 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian G. Goss

APPROVED BY :

The information shown on this sheet is test data : F-513 analysis or interpretation is intended :

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1733

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : R9 12-8-58
CLIENT SAMPLE ID : METHOD BLANK 12-8-89
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-6-88
DATE ANALYSED : 1-7-89

| | | | |
|-------|------------------------------|-------|-----------------------------|
| 330U | n-nitroso-dimethylamine | 330U | dibenzofuran |
| 1400 | phenol | 330U | 2,4-dinitrotoluene |
| 330U | aniline | 330U | 2,6-dinitrotoluene |
| 330U | bis(2-chloroethyl) ether | 330U | diethyl phthalate |
| 330U | 2-chlorophenol | 330U | 4-chlorophenyl phenyl ether |
| 330U | 1,3-dichlorobenzene | 330U | fluorene |
| 330U | 1,4-dichlorobenzene | 1600U | 4-nitroaniline |
| 330U | benzyl alcohol | 1600U | 4,6-dinitro-2-ethylphenol |
| 330U | 1,2-dichlorobenzene | 330U | n-nitrosodiphenylamine |
| 330U | 2-ethylphenol | 330U | 4-bromophenyl phenyl ether |
| 330U | bis(2-chloroisopropyl) ether | 330U | hexachlorobenzene |
| 330U | 4-ethylphenol | 1600U | pentachlorophenol |
| 330U | n-nitroso-di-n-propylamine | 330U | phenanthrene |
| 330U | hexachloroethane | 330U | anthracene |
| 330U | nitrobenzene | 330U | di-n-butyl phthalate |
| 330U | isophorone | 330U | fluoranthene |
| 330U | 2-nitrophenol | 1600U | benzidine |
| 330U | 2,4-diethylphenol | 330U | pyrene |
| 1600U | benzoic acid | 330U | butyl benzyl phthalate |
| 330U | bis(2-chloroethoxy) methane | 660U | 3,3'-dichlorobenzidine |
| 330U | 2,4-dichlorophenol | 330U | benzo(a)anthracene |
| 330U | 1,2,4-trichlorobenzene | 330U | bis(2-ethylhexyl)phthalate |
| 330U | naphthalene | 330U | chrysene |
| 330U | 4-chloroaniline | 330U | di-n-octyl phthalate |
| 330U | hexachlorobutadiene | 330U | benzo(b)fluoranthene |
| 330U | 4-chloro-3-ethylphenol | 330U | benzo(k)fluoranthene |
| 330U | 2-ethylnaphthalene | 330U | benzo(a)pyrene |
| 330U | hexachlorocyclopentadiene | 330U | indeno(1,2,3-cd)pyrene |
| 330U | 2,4,6-trichlorophenol | 330U | dibenz(a,h)anthracene |
| 1600U | 2,4,5-trichlorophenol | 330U | benzo(g,h,i)perylene |
| 330U | 2-chloronaphthalene | | SURROGATE & RECOVERY |
| 1600U | 2-nitroaniline | 56 | 2-fluorophenol (SS1) |
| 330U | dimethyl phthalate | 70 | phenol-d5 (SS2) |
| 330U | acenaphthylene | 70 | nitrobenzene-d5 (SS3) |
| 1600U | 3-nitroaniline | 78 | 2-fluorobiphenyl |
| 330U | acenaphthene | 48 | 2,4,6-tribromophenol (SS5) |
| 1600U | 2,4-dinitrophenol | 101 | p-terphenyl-d14 (SS6) |
| 1600U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian J. Jones

APPROVED BY :

The information shown on this sheet is test data

F-514

analysis or interpretation is intended

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1733

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : R2 12-8-88
CLIENT SAMPLE ID : METHOD BLANK 12-8-88
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/S4C
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-9-88
DATE ANALYSED : 1-10-89

| | |
|-----------------------------------|----------------------------------|
| 330U n-nitroso-diethylamine | 330U dibenzofuran |
| 1600U phenol | 330U 2,4-dinitrotoluene |
| 330U aniline | 330U 2,6-dinitrotoluene |
| 330U bis(2-chloroethyl) ether | 330U diethyl phthalate |
| 330U 2-chlorophenol | 330U 4-chlorophenyl phenyl ether |
| 330U 1,3-dichlorobenzene | 330U fluorene |
| 330U 1,4-dichlorobenzene | 1600U 4-nitroaniline |
| 330U benzyl alcohol | 1600U 4,6-dinitro-2-methylphenol |
| 330U 1,2-dichlorobenzene | 330U n-nitrosodiphenylamine |
| 330U 2-methylphenol | 330U 4-bromophenyl phenyl ether |
| 330U bis(2-chloroisopropyl) ether | 330U hexachlorobenzene |
| 330U 4-methylphenol | 1600U pentachlorophenol |
| 330U n-nitroso-di-n-propylamine | 330U phenanthrene |
| 330U hexachloroethane | 330U anthracene |
| 330U nitrobenzene | 330U di-n-butyl phthalate |
| 330U isophorone | 330U fluoranthene |
| 330U 2-nitrophenol | 1600U benzidine |
| 330U 2,4-diethylphenol | 330U pyrene |
| 1600U benzoic acid | 330U butyl benzyl phthalate |
| 330U bis(2-chloroethoxy) methane | 660U 3,3'-dichlorobenzidine |
| 330U 2,4-dichlorophenol | 330U benzo(a)anthracene |
| 330U 1,2,4-trichlorobenzene | 330U bis(2-ethylhexyl)phthalate |
| 330U naphthalene | 330U chrysene |
| 330U 4-chloroaniline | 330U di-n-octyl phthalate |
| 330U hexachlorobutadiene | 330U benzo(b)fluoranthene |
| 330U 4-chloro-3-methylphenol | 330U benzo(k)fluoranthene |
| 330U 2-methylnaphthalene | 330U benzo(a)pyrene |
| 330U hexachlorocyclopentadiene | 330U indeno(1,2,3-cd)pyrene |
| 330U 2,4,6-trichlorophenol | 330U dibenz(a,h)anthracene |
| 1600U 2,4,5-trichlorophenol | 330U benzo(g,h,i)perylene |
| 330U 2-chloronaphthalene | SURROGATE & RECOVERY |
| 1600U 2-nitroaniline | 44 2-fluorophenol (SS1) |
| 330U diethyl phthalate | 59 phenol-d5 (SS2) |
| 330U acenaphthylene | 70 nitrobenzene-d5 (SS3) |
| 1600U 3-nitroaniline | 78 2-fluorobiphenyl |
| 330U acenaphthene | 53 2,4,6-tribromophenol (SS5) |
| 1600U 2,4-dinitrophenol | 117 p-terphenyl-d14 (SS6) |
| 1600U 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian H. Hays

APPROVED BY :

The information shown on this sheet is test data only, F-515 is or interpretation is intended or

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-23-88
CLIENT SAMPLE ID : METHOD BLANK 12-23-88
REPORT DATE : 01-24-1989

NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-23-88
DATE ANALYSED : 1-20-89

| | | | |
|-------|------------------------------|-------|-----------------------------|
| 330U | n-nitroso-diethylamine | 330U | dibenzofuran |
| 1700 | phenol | 330U | 2,4-dinitrotoluene |
| 330U | aniline | 330U | 2,6-dinitrotoluene |
| 330U | bis(2-chloroethyl) ether | 330U | diethyl phthalate |
| 330U | 2-chlorophenol | 330U | 4-chlorophenyl phenyl ether |
| 330U | 1,3-dichlorobenzene | 330U | fluorene |
| 330U | 1,4-dichlorobenzene | 1600U | 4-nitroaniline |
| 330U | benzyl alcohol | 1600U | 4,6-dinitro-2-ethylphenol |
| 330U | 1,2-dichlorobenzene | 330U | n-nitrosodiphenylamine |
| 330U | 2-ethylphenol | 330U | 4-bromophenyl phenyl ether |
| 330U | bis(2-chloroisopropyl) ether | 330U | hexachlorobenzene |
| 330U | 4-ethylphenol | 1600U | pentachlorophenol |
| 330U | n-nitroso-di-n-propylamine | 330U | phenanthrene |
| 330U | hexachloroethane | 330U | anthracene |
| 330U | nitrobenzene | 330U | di-n-butyl phthalate |
| 330U | isophorone | 330U | fluoranthene |
| 330U | 2-nitrophenol | 1600U | benzidine |
| 330U | 2,4-dioethylphenol | 330U | pyrene |
| 1600U | benzoic acid | 330U | butyl benzyl phthalate |
| 330U | bis(2-chloroethoxy) methane | 660U | 3,3'-dichlorobenzidine |
| 330U | 2,4-dichlorophenol | 330U | benzo(a)anthracene |
| 330U | 1,2,4-trichlorobenzene | 330U | bis(2-ethylhexyl)phthalate |
| 330U | naphthalene | 330U | chrysene |
| 330U | 4-chloroaniline | 330U | di-n-octyl phthalate |
| 330U | hexachlorobutadiene | 330U | benzo(b)fluoranthene |
| 330U | 4-chloro-3-ethylphenol | 330U | benzo(k)fluoranthene |
| 330U | 2-ethylnaphthalene | 330U | benzo(a)pyrene |
| 330U | hexachlorocyclopentadiene | 330U | indeno(1,2,3-cd)pyrene |
| 330U | 2,4,6-trichlorophenol | 330U | dibenz(a,h)anthracene |
| 1600U | 2,4,5-trichlorophenol | 330U | benzo(g,h,i)perylene |
| 330U | 2-chloronaphthalene | | SURROGATE & RECOVERY |
| 1600U | 2-nitroaniline | OU | 2-fluorophenol (SS1) |
| 330U | dimethyl phthalate | OU | phenol-d5 (SS2) |
| 330U | acenaphthylene | OU | nitrobenzene-d5 (SS3) |
| 1600U | 3-nitroaniline | OU | 2-fluorobiphenyl |
| 330U | acenaphthene | OU | 2,4,6-tribromophenol (SS5) |
| 1600U | 2,4-dinitrophenol | OU | p-terphenyl-d14 (SS6) |
| 1600U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Russell J. Jones

APPROVED BY :

The information shown on this sheet is test data only F-516 ysis or interpretation is intended or

CHEN HILL ENVIRONMENTAL LABORATORY
1219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : RB 12-27-88
CLIENT SAMPLE ID : METHOD BLANK 12-27-88
REPORT DATE : 01-25-1989

CLIENT NAME : BEALE AFB CHEN HILL/SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED : 12-27-88
DATE ANALYSED : 1-24-89

| | | | |
|-------|------------------------------|----------------------|-----------------------------|
| 330U | n-nitroso-diethylamine | 330U | dibenzofuran |
| 1600U | phenol | 330U | 2,4-dinitrotoluene |
| 330U | aniline | 330U | 2,6-dinitrotoluene |
| 330U | bis(2-chloroethyl) ether | 330U | diethyl phthalate |
| 330U | 2-chlorophenol | 330U | 4-chlorophenyl phenyl ether |
| 330U | 1,3-dichlorobenzene | 330U | fluorene |
| 330U | 1,4-dichlorobenzene | 1600U | 4-nitroaniline |
| 330U | benzyl alcohol | 1600U | 4,6-dinitro-2-methylphenol |
| 330U | 1,2-dichlorobenzene | 330U | n-nitrosodiphenylamine |
| 330U | 2-methylphenol | 330U | 4-bromophenyl phenyl ether |
| 330U | bis(2-chloroisopropyl) ether | 330U | hexachlorobenzene |
| 330U | 4-methylphenol | 1600U | pentachlorophenol |
| 330U | n-nitroso-di-n-propylamine | 330U | phenanthrene |
| 330U | hexachloroethane | 330U | anthracene |
| 330U | nitrobenzene | 330U | di-n-butyl phthalate |
| 330U | isophorone | 330U | fluoranthene |
| 330U | 2-nitrophenol | 1600U | benzidine |
| 330U | 2,4-dimethylphenol | 330U | pyrene |
| 1600U | benzoic acid | 330U | butyl benzyl phthalate |
| 330U | bis(2-chloroethoxy) methane | 660U | 3,3'-dichlorobenzidine |
| 330U | 2,4-dichlorophenol | 330U | benzo(a)anthracene |
| 330U | 1,2,4-trichlorobenzene | 330U | bis(2-ethylhexyl)phthalate |
| 330U | naphthalene | 330U | chrysene |
| 330U | 4-chloroaniline | 330U | di-n-octyl phthalate |
| 330U | hexachlorobutadiene | 330U | benzo(b)fluoranthene |
| 330U | 4-chloro-3-methylphenol | 330U | benzo(k)fluoranthene |
| 330U | 2-methylnaphthalene | 330U | benzo(a)pyrene |
| 330U | hexachlorocyclopentadiene | 330U | indeno(1,2,3-cd)pyrene |
| 330U | 2,4,6-trichlorophenol | 330U | dibenz(a,h)anthracene |
| 1600U | 2,4,5-trichlorophenol | 330U | benzo(g,h,i)perylene |
| 330U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600U | 2-nitroaniline | 53 | 2-fluorophenol (SS1) |
| 330U | dimethyl phthalate | 76 | phenol-d5 (SS2) |
| 330U | acenaphthylene | 70 | nitrobenzene-d5 (SS3) |
| 1600U | 3-nitroaniline | 70 | 2-fluorobiphenyl |
| 330U | acenaphthene | 54 | 2,4,6-tribromophenol (SS5) |
| 1600U | 2,4-dinitrophenol | 85 | p-terphenyl-d14 (SS6) |
| 1600U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on a. stion.

E = indicates an estimated trace value.

ANALYST :

Brian Ross

APPROVED BY :

The information shown on this sheet is test data only

F-517

s.s or interpretation is intended or is,

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB-01-18-89
 Client Sample ID: METHOD BLANK

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/18/89
 Date Analyzed: 02/08/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|--------------------------------------|------------|--------------------------------------|
| 52-75-9 | N-Nitrosodimethylamine . . . 330 U | 51-28-5 | 2,4-Dinitrophenol 1600 U |
| 108-95-2 | Phenol 330 U | 100-02-7 | 4-Nitrophenol 1600 U |
| 52-53-3 | Aniline 330 U | 132-64-9 | Dibenzofuran 330 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 330 U | 121-14-2 | 2,4-Dinitrotoluene 330 U |
| 35-57-8 | 2-Chlorophenol 330 U | 84-66-2 | Diethylphthalate 550 B |
| 541-73-1 | 1,3-Dichlorobenzene 330 U | 7005-72-3 | 4-Chlorophenyl-phenylether 330 U |
| 106-46-7 | 1,4-Dichlorobenzene 330 U | 86-73-7 | Fluorene 330 U |
| 100-51-6 | Benzyl Alcohol 330 U | 100-01-6 | 4-Nitroaniline 1600 U |
| 35-50-1 | 1,2-Dichlorobenzene 330 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 1600 U |
| 35-48-7 | 2-Methylphenol 330 U | 86-30-6 | N-Nitrosodiphenylamine (1) 83 BJ |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 330 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 330 U |
| 106-44-5 | 4-Methylphenol 330 U | 101-55-3 | 4-Bromophenyl-phenylether 330 U |
| 521-64-7 | N-Nitroso-Di-n-Propylamine 330 U | 118-74-1 | Hexachlorobenzene 330 U |
| 37-72-1 | Hexachloroethane 330 U | 87-86-5 | Pentachlorophenol 330 U |
| 98-95-3 | Nitrobenzene 330 U | 85-01-8 | Phenanthrene 330 U |
| 78-59-1 | Isophorone 330 U | 120-12-7 | Anthracene 330 U |
| 38-75-5 | 2-Nitrophenol 330 U | 84-74-2 | Di-n-Butylphthalate 35 BJ |
| 105-67-9 | 2,4-Dimethylphenol 330 U | 206-44-0 | Fluoranthene 330 U |
| 35 0 | Benzoic Acid 1600 U | 129-00-0 | Pyrene 330 U |
| 11. -1 | bis(2-Chloroethoxy)Methane 330 U | 85-68-7 | Butylbenzylphthalate 330 U |
| 20-83-2 | 2,4-Dichlorophenol 330 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 660 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . 330 U | 56-55-3 | Benzo(a)anthracene 330 U |
| 11-20-3 | Naphthalene 330 U | 218-01-9 | Chrysene 330 U |
| 06-47-8 | 4-Chloroaniline 330 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 85 BJ |
| 37-68-3 | Hexachlorobutadiene 330 U | 117-84-0 | Di-n-octylphthalate 330 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . 330 U | 205-99-2 | Benzo(b)fluoranthene 330 U |
| 1-57-6 | 2-Methylnaphthalene 330 U | 207-08-9 | Benzo(k)fluoranthene 330 U |
| 7-47-4 | Hexachlorocyclopentadiene 330 U | 50-32-8 | Benzo(a)pyrene 330 U |
| 8-06-2 | 2,4,6-Trichlorophenol 330 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 330 U |
| 5-95-4 | 2,4,5-Trichlorophenol 1600 U | 53-70-3 | Dibenz(a,h)Anthracene 330 U |
| 1-58-7 | 2-Chloronaphthalene 330 U | 191-24-2 | Benzo(g,h,i)perylene 330 U |
| 8-74-4 | 2-Nitroaniline 1600 U | | |
| 31-11-3 | Dimethyl Phthalate 330 U | | Nitrobenzene-d5 - SS 75 |
| 08-96-8 | Acenaphthylene 330 U | | 2-Fluorobiphenyl - SS 85 |
| 06-20-2 | 2,6-Dinitrotoluene 330 U | | Terphenyl-d14 - SS 130 |
| 9-09-2 | 3-Nitroaniline 1600 U | | Phenol-d5 - SS 64 |
| 3-32-9 | Acenaphthene 330 U | | 2-Fluorophenol - SS 61 |
| | | | 2,4,6-Tribromophenol - SS . . 66 |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

86

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB-01-19-89
 Client Sample ID: METHOD BLANK

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/19/89
 Date Analyzed: 02/16/89
 Dilution Factor:

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|-------------------------------------|------------|------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 330 U | 51-28-5 | 2,4-Dinitrophenol 1600 U |
| 108-95-2 | Phenol 330 U | 100-02-7 | 4-Nitrophenol 1600 U |
| 62-53-3 | Aniline 330 U | 132-64-9 | Dibenzofuran 330 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 330 U | 121-14-2 | 2,4-Dinitrotoluene 330 U |
| 95-57-8 | 2-Chlorophenol 330 U | 84-66-2 | Diethylphthalate 330 U |
| 541-73-1 | 1,3-Dichlorobenzene 330 U | 7005-72-3 | 4-Chlorophenyl-phenylether 330 U |
| 106-46-7 | 1,4-Dichlorobenzene 330 U | 86-73-7 | Fluorene 330 U |
| 100-51-6 | Benzyl Alcohol 330 U | 100-01-6 | 4-Nitroaniline 1600 U |
| 95-50-1 | 1,2-Dichlorobenzene 330 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 1600 U |
| 95-48-7 | 2-Methylphenol 330 U | 86-30-6 | N-Nitrosodiphenylamine (1) 330 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 330 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 330 U |
| 106-44-5 | 4-Methylphenol 330 U | 101-55-3 | 4-Bromophenyl-phenylether 330 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 330 U | 118-74-1 | Hexachlorobenzene 330 U |
| 67-72-1 | Hexachloroethane 330 U | 87-86-5 | Pentachlorophenol 330 U |
| 98-95-3 | Nitrobenzene 330 U | 85-01-8 | Phenanthrene 330 U |
| 78-59-1 | Isophorone 330 U | 120-12-7 | Anthracene 330 U |
| 88-75-5 | 2-Nitrophenol 330 U | 84-74-2 | Di-n-Butylphthalate 57 BJ |
| 105-67-9 | 2,4-Dimethylphenol 330 U | 206-44-0 | Fluoranthene 330 U |
| 65-85-0 | Benzoic Acid 1600 U | 129-00-0 | Pyrene 330 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane 330 U | 85-68-7 | Butylbenzylphthalate 330 U |
| 120-83-2 | 2,4-Dichlorophenol 330 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 660 |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 330 U | 56-55-3 | Benzo(a)anthracene 330 U |
| 91-20-3 | Naphthalene 330 U | 218-01-9 | Chrysene 330 U |
| 106-47-8 | 4-Chloroaniline 330 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 72 BJ |
| 87-68-3 | Hexachlorobutadiene 330 U | 117-84-0 | Di-n-octylphthalate 330 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 330 U | 205-99-2 | Benzo(b)fluoranthene 330 U |
| 91-57-6 | 2-Methylnaphthalene 330 U | 207-08-9 | Benzo(k)fluoranthene 330 U |
| 77-47-4 | Hexachlorocyclopentadiene 330 U | 50-32-8 | Benzo(a)pyrene 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol 330 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . 1600 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 330 U |
| 91-58-7 | 2-Chloronaphthalene 330 U | 191-24-2 | Benzo(g,h,i)perylene 330 U |
| 38-74-4 | 2-Nitroaniline 1600 U | | |
| 131-11-3 | Dimethyl Phthalate 330 U | | Nitrobenzene-d5 - SS 65 |
| 208-96-8 | Acenaphthylene 330 U | | 2-Fluorobiphenyl - SS 73 |
| 606-20-2 | 2,6-Dinitrotoluene 330 U | | Terphenyl-d14 - SS 100 |
| 99-09-2 | 3-Nitroaniline 1600 U | | Phenol-d5 - SS 76 |
| 33-32-9 | Acenaphthene 330 U | | 2-Fluorophenol - SS 68 |
| | | | 2,4,6-Tribromophenol - SS . . 73 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

6



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: SB051289B1
Client Sample ID: SBLKS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted: 05/12/89
Date Analyzed: 05/19/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|--------------------------------|-------|---|
| 52-75-9 | N-Nitrosodimethylamine . . . | 330 | U | 51-28-5 | 2,4-Dinitrophenol | 1600 | U |
| 108-95-2 | Phenol | 330 | U | 100-02-7 | 4-Nitrophenol | 1600 | U |
| 52-53-3 | Aniline | 330 | U | 132-64-9 | Dibenzofuran | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 521-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 57-72-1 | Hexachloroethane | 330 | U | 87-86-5 | Pentachlorophenol | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 38-75-5 | 2-Nitrophenol | 330 | U | 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 65-85-0 | Benzoic Acid | 1600 | U | 129-00-0 | Pyrene | 330 | U |
| 11-1 | bis(2-Chloroethoxy)Methane | 330 | U | 85-68-7 | Butylbenzylphthalate | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 660 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U | 218-01-9 | Chrysene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 37-68-3 | Hexachlorobutadiene | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 38-06-2 | 2,4,6-Trichlorophenol | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 | U | 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | 191-24-2 | Benzo(g,h,i)perylene | 330 | U |
| 38-74-4 | 2-Nitroaniline | 1600 | U | | | | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | Nitrobenzene-d5 - SS | 34 | |
| 208-96-8 | Acenaphthylene | 330 | U | | 2-Fluorobiphenyl - SS | 38 | |
| 506-20-2 | 2,6-Dinitrotoluene | 330 | U | | Terphenyl-d14 - SS | 70 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | Phenol-d5 - SS | 50 | |
| 33-32-9 | Acenaphthene | 330 | U | | 2-Fluorophenol - SS | 36 | |
| | | | | | 2,4,6-Tribromophenol - SS . . | 55 | |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
-- - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

F-520

9 Railroad Avenue, P O Box 2088
Oroville, California 96001

916 243 5831

PS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: SB05128981
Client Sample ID: SOIL-BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted: 05/12/89
Date Analyzed: 05/19/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|------------|--------------------------------------|------------|-------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 330 U | 51-28-5 | 2,4-Dinitrophenol 1600 U |
| 108-95-2 | Phenol 330 U | 100-02-7 | 4-Nitrophenol 1600 U |
| 62-53-3 | Aniline 330 U | 132-64-9 | Dibenzofuran 330 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 330 U | 121-14-2 | 2,4-Dinitrotoluene 330 U |
| 95-57-8 | 2-Chlorophenol 330 U | 84-66-2 | Diethylphthalate 330 U |
| 541-73-1 | 1,3-Dichlorobenzene 330 U | 7005-72-3 | 4-Chlorophenyl-phenylether 330 U |
| 106-46-7 | 1,4-Dichlorobenzene 330 U | 86-73-7 | Fluorene 330 U |
| 100-51-6 | Benzyl Alcohol 330 U | 100-01-6 | 4-Nitroaniline 1600 U |
| 95-50-1 | 1,2-Dichlorobenzene 330 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 1600 U |
| 95-48-7 | 2-Methylphenol 330 U | 86-30-6 | N-Nitrosodiphenylamine (1) 330 U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether 330 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 330 U |
| 106-44-5 | 4-Methylphenol 330 U | 101-55-3 | 4-Bromophenyl-phenylether 330 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 330 U | 118-74-1 | Hexachlorobenzene 330 U |
| 67-72-1 | Hexachloroethane 330 U | 87-86-5 | Pentachlorophenol 330 U |
| 98-95-3 | Nitrobenzene 330 U | 85-01-8 | Phenanthrene 330 U |
| 78-59-1 | Isophorone 330 U | 120-12-7 | Anthracene 330 U |
| 88-75-5 | 2-Nitrophenol 330 U | 84-74-2 | Di-n-Butylphthalate 330 U |
| 105-67-9 | 2,4-Dimethylphenol 330 U | 206-44-0 | Fluoranthene 330 U |
| 65-85-0 | Benzoic Acid 1600 U | 129-00-0 | Pyrene 330 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane 330 U | 85-68-7 | Butylbenzylphthalate 330 U |
| 120-83-2 | 2,4-Dichlorophenol 330 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 660 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 330 U | 56-55-3 | Benzo(a)anthracene 330 U |
| 91-20-3 | Naphthalene 330 U | 218-01-9 | Chrysene 330 U |
| 106-47-8 | 4-Chloroaniline 330 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 330 U |
| 87-68-3 | Hexachlorobutadiene 330 U | 117-84-0 | Di-n-octylphthalate 330 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 330 U | 205-99-2 | Benzo(b)fluoranthene 330 U |
| 91-57-6 | 2-Methylnaphthalene 330 U | 207-08-9 | Benzo(k)fluoranthene 330 U |
| 77-47-4 | Hexachlorocyclopentadiene 330 U | 50-32-8 | Benzo(a)pyrene 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol 330 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol 1600 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 330 U |
| 91-58-7 | 2-Chloronaphthalene 330 U | 191-24-2 | Benzo(g,h,i)perylene 330 U |
| 88-74-4 | 2-Nitroaniline 1600 U | | |
| 131-11-3 | Dimethyl Phthalate 330 U | | Nitrobenzene-d5 - SS 34 |
| 208-96-8 | Acenaphthylene 330 U | | 2-Fluorobiphenyl - SS 38 |
| 506-20-2 | 2,6-Dinitrotoluene 330 U | | Terphenyl-d14 - SS 70 |
| 99-09-2 | 3-Nitroaniline 1600 U | | Phenol-d5 - SS 50 |
| 83-32-9 | Acenaphthene 330 U | | 2-Fluorophenol - SS 36 |
| | | | 2,4,6-Tribromophenol - SS . . 55 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Redding
Environmental Laboratory

Highway Avenue P O Box 2088
F-521 California 96001

310 243 5831

RS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538001
 Client Sample ID: EXTRACT BLAN

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|--------|------------|-------------------------------|--------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 330 U | 100-02-7 | 4-Nitrophenol | 1600 U |
| 108-95-2 | Phenol | 330 U | 132-64-9 | Dibenzofuran | 330 U |
| 62-53-3 | Aniline | 330 U | 121-14-2 | 2,4-Dinitrotoluene | 330 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 330 U | 84-66-2 | Diethylphthalate | 330 U |
| 95-57-8 | 2-Chlorophenol | 330 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 U | 86-73-7 | Fluorene | 330 U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 U | 100-01-6 | 4-Nitroaniline | 1600 U |
| 100-51-6 | Benzyl Alcohol | 330 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 U |
| 95-48-7 | 2-Methylphenol | 330 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 330 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 U | 101-55-3 | 4-Bromophenyl-phenylether | 330 U |
| 106-44-5 | 4-Methylphenol | 330 U | 118-74-1 | Hexachlorobenzene | 330 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 330 U | 87-86-5 | Pentachlorophenol | 330 U |
| 67-72-1 | Hexachloroethane | 330 U | 85-01-8 | Phenanthrene | 330 U |
| 98-95-3 | Nitrobenzene | 330 U | 120-12-7 | Anthracene | 330 U |
| 78-59-1 | Isophorone | 330 U | 84-74-2 | Di-n-Butylphthalate | 330 U |
| 88-75-5 | 2-Nitrophenol | 330 U | 206-44-0 | Fluoranthene | 330 U |
| 105-67-9 | 2,4-Dimethylphenol | 330 U | 129-00-0 | Pyrene | 330 U |
| 65-85-0 | Benzoic Acid | 1600 U | 85-68-7 | Butylbenzylphthalate | 330 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 660 U |
| 120-83-2 | 2,4-Dichlorophenol | 330 U | 56-55-3 | Benzo(a)anthracene | 330 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 330 U | 218-01-9 | Chrysene | 330 U |
| 91-20-3 | Naphthalene | 330 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 U |
| 47-8 | 4-Chloroaniline | 330 U | 117-84-0 | Di-n-octylphthalate | 330 U |
| 87-68-3 | Hexachlorobutadiene | 330 U | 205-99-2 | Benzo(b)fluoranthene | 330 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 330 U | 207-08-9 | Benzo(k)fluoranthene | 330 U |
| 91-57-6 | 2-Methylnaphthalene | 330 U | 50-32-8 | Benzo(a)pyrene | 330 U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 U | 191-24-2 | Benzo(g,h,i)perylene | 330 U |
| 91-58-7 | 2-Chloronaphthalene | 330 U | | | |
| 88-74-4 | 2-Nitroaniline | 1600 U | | Nitrobenzene-d5 - SS | 97 |
| 31-11-3 | Dimethyl Phthalate | 330 U | | 2-Fluorobiphenyl - SS | 72 |
| 108-96-8 | Acenaphthylene | 330 U | | Terphenyl-d14 - SS | 94 |
| 606-20-2 | 2,6-Dinitrotoluene | 330 U | | Phenol-d5 - SS | 94 |
| 99-09-2 | 3-Nitroaniline | 1600 U | | 2-Fluorophenol - SS | 78 |
| 83-32-9 | Acenaphthene | 330 U | | 2,4,6-Tribromophenol - SS . . | 67 |
| 51-28-5 | 2,4-Dinitrophenol | 1600 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-522



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 12538001
Client Sample ID: EXTRACTS BLAN

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted: 12/20/88
Date Analyzed: 01/19/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/Kg | CAS Number | | ug/Kg |
|-----------|-------------------------------|--------|------------|-------------------------------|--------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 330 U | 100-02-7 | 4-Nitrophenol | 1600 U |
| 08-95-2 | Phenol | 330 U | 132-64-9 | Dibenzofuran | 330 U |
| 2-53-3 | Aniline | 330 U | 121-14-2 | 2,4-Dinitrotoluene | 330 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 330 U | 84-66-2 | Diethylphthalate | 330 U |
| 5-57-8 | 2-Chlorophenol | 330 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 U |
| 41-73-1 | 1,3-Dichlorobenzene | 330 U | 86-73-7 | Fluorene | 330 U |
| 06-46-7 | 1,4-Dichlorobenzene | 330 U | 100-01-6 | 4-Nitroaniline | 1600 U |
| 00-51-6 | Benzyl Alcohol | 330 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 U |
| 5-50-1 | 1,2-Dichlorobenzene | 330 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 U |
| 5-48-7 | 2-Methylphenol | 330 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 330 U |
| 08-60-1 | bis(2-Chloroisopropyl)Ether | 330 U | 101-55-3 | 4-Bromophenyl-phenylether | 330 U |
| 06-44-5 | 4-Methylphenol | 330 U | 118-74-1 | Hexachlorobenzene | 330 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 330 U | 87-86-5 | Pentachlorophenol | 330 U |
| 7-72-1 | Hexachloroethane | 330 U | 85-01-8 | Phenanthrene | 330 U |
| 3-95-3 | Nitrobenzene | 330 U | 120-12-7 | Anthracene | 330 U |
| 3-59-1 | Isophorone | 330 U | 84-74-2 | Di-n-Butylphthalate | 330 U |
| 3-75-5 | 2-Nitrophenol | 330 U | 206-44-0 | Fluoranthene | 330 U |
| 05-67-9 | 2,4-Dimethylphenol | 330 U | 129-00-0 | Pyrene | 330 U |
| 5-85-0 | Benzoic Acid | 1600 U | 85-68-7 | Butylbenzylphthalate | 330 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 330 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 660 U |
| 20-83-2 | 2,4-Dichlorophenol | 330 U | 56-55-3 | Benzo(a)anthracene | 330 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 330 U | 218-01-9 | Chrysene | 330 U |
| 1-20-3 | Naphthalene | 330 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 U |
| 06-47-8 | 4-Chloroaniline | 330 U | 117-84-0 | Di-n-octylphthalate | 330 U |
| 7-68-3 | Hexachlorobutadiene | 330 U | 205-99-2 | Benzo(b)fluoranthene | 330 U |
| 3-50-7 | 4-Chloro-3-methylphenol . . . | 330 U | 207-08-9 | Benzo(k)fluoranthene | 330 U |
| 1-57-6 | 2-Methylnaphthalene | 330 U | 50-32-8 | Benzo(a)pyrene | 330 U |
| 7-47-4 | Hexachlorocyclopentadiene | 330 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 330 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 330 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 330 U |
| 3-95-4 | 2,4,5-Trichlorophenol | 1600 U | 191-24-2 | Benzo(g,h,i)perylene | 330 U |
| 1-58-7 | 2-Chloronaphthalene | 330 U | | | |
| 3-74-4 | 2-Nitroaniline | 1600 U | | Nitrobenzene-d5 - SS | 97 |
| 11-11-3 | Dimethyl Phthalate | 330 U | | 2-Fluorobiphenyl - SS | 72 |
| 08-96-8 | Acenaphthylene | 330 U | | Terphenyl-d14 - SS | 94 |
| 06-20-2 | 2,6-Dinitrotoluene | 330 U | | Phenol-d5 - SS | 94 |
| 3-09-2 | 3-Nitroaniline | 1600 U | | 2-Fluorophenol - SS | 78 |
| 3-32-9 | Acenaphthene | 330 U | | 2,4,6-Tribromophenol - SS . . | 67 |
| 1-28-5 | 2,4-Dinitrophenol | 1600 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Montgomery
Environmental Laboratory

17-523

Montgomery Drive, P.O. Box 230548,
Montgomery, Alabama 36116

205 271 1444

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Sample ID: 12538001
 Client Sample ID: EXTRACTS BLAN

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-----------------------------|-------|---|------------|----------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine . . | 330 | U | 100-02-7 | 4-Nitrophenol | 1600 | U |
| 108-95-2 | Phenol | 330 | U | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 330 | U | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U | 87-86-5 | Pentachlorophenol | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate . . . | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 330 | U |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate . . . | 330 | U |
| 91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 660 | U |
| 83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 330 | U | 218-01-9 | Chrysene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate . . . | 330 | U |
| 87-68-3 | Hexachlorobutadiene . . . | 330 | U | 205-99-2 | Benzo(b)fluoranthene . . . | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 330 | U | 207-08-9 | Benzo(k)fluoranthene . . . | 330 | U |
| 91-57-6 | 2-Methylnaphthalene . . . | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene . . | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 330 | U |
| 91-58-7 | 2-Chloronaphthalene . . . | 330 | U | | | | |
| 88-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS . . . | 97 | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS . . | 72 | |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS . . . | 94 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 94 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS . . . | 78 | |
| 83-32-9 | Acenaphthene | 330 | U | | 2,4,6-Tribromophenol - SS | 67 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 ~ - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Montgomery
 Environmental Laboratory

2000 Drive, P.O. Box 230548,
 Montgomery, Alabama 36102

2

F-524

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB_12-28

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12713 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA002656

Level: (low/med) LOW Date Received: 12/28/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/28/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/KG</u> | Q |
|---------------|------------------------------|------------------------------------------------------|---|
| 108-95-2----- | Phenol | 1500 | B |
| 111-44-4----- | bis(2-Chloroethyl) Ether | 330 | U |
| 95-57-8----- | 2-Chlorophenol | 330 | U |
| 541-73-1----- | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7----- | 1,4-Dichlorobenzene | 330 | U |
| 100-51-6----- | Benzyl Alcohol | 330 | U |
| 95-50-1----- | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7----- | 2-Methylphenol | 330 | U |
| 108-60-1----- | bis(2-Chloroisopropyl) Ether | 330 | U |
| 106-44-5----- | 4-Methylphenol | 330 | U |
| 621-64-7----- | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1----- | Hexachloroethane | 330 | U |
| 98-95-3----- | Nitrobenzene | 330 | U |
| 78-59-1----- | Isophorone | 330 | U |
| 88-75-5----- | 2-Nitrophenol | 330 | U |
| 105-67-9----- | 2,4-Dimethylphenol | 330 | U |
| 65-85-0----- | Benzoic Acid | 1600 | U |
| 111-91-1----- | bis(2-Chloroethoxy) Methane | 330 | U |
| 120-83-2----- | 2,4-Dichlorophenol | 330 | U |
| 120-82-1----- | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3----- | Naphthalene | 330 | U |
| 106-47-8----- | 4-Chloroaniline | 330 | U |
| 87-68-3----- | Hexachlorobutadiene | 330 | U |
| 59-50-7----- | 4-Chloro-3-methylphenol | 330 | U |
| 91-57-6----- | 2-Methylnaphthalene | 330 | U |
| 77-47-4----- | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2----- | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4----- | 2,4,5-Trichlorophenol | 1600 | U |
| 91-58-7----- | 2-Chloronaphthalene | 330 | U |
| 88-74-4----- | 2-Nitroaniline | 1600 | U |
| 131-11-3----- | Dimethyl Phthalate | 330 | U |
| 208-96-8----- | Acenaphthylene | 330 | U |
| 606-20-2----- | 2,6-Dinitrotoluene | 330 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB_12-28

b Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12719 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA002656

Level: (low/med) LOW Date Received: 12/28/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/28/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/KG</u> | Q |
|----------------|----------------------------|------------------------------------------------------|----|
| 99-09-2----- | 3-Nitroaniline | 1600 | U |
| 83-32-9----- | Acenaphthene | 330 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 1600 | U |
| 100-02-7----- | 4-Nitrophenol | 1600 | U |
| 132-64-9----- | Dibenzofuran | 330 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 330 | U |
| 84-66-2----- | Diethylphthalate | 330 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7----- | Fluorene | 330 | U |
| 100-01-6----- | 4-Nitroaniline | 1600 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 86-30-6----- | N-Nitrosodiphenylamine (1) | 330 | U |
| 122-66-7----- | 1,2-Diphenylhydrazine | 330 | U |
| 101-55-3----- | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1----- | Hexachlorobenzene | 330 | U |
| 87-86-5----- | Pentachlorophenol | 330 | U |
| 85-01-8----- | Phenanthrene | 330 | U |
| 120-12-7----- | Anthracene | 330 | U |
| 84-74-2----- | Di-n-Butylphthalate | 110 | BJ |
| 206-44-0----- | Fluoranthene | 330 | U |
| 129-00-0----- | Pyrene | 330 | U |
| 85-68-7----- | Butylbenzylphthalate | 330 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 660 | U |
| 56-55-3----- | Benzo(a)anthracene | 330 | U |
| 218-01-9----- | Chrysene | 330 | U |
| 117-81-7----- | bis(2-Ethylhexyl)Phthalate | 100 | BJ |
| 117-84-0----- | Di-n-octylphthalate | 330 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 330 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 330 | U |
| 50-32-8----- | Benzo(a)pyrene | 330 | U |
| 193-39-5----- | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 330 | U |

(1) - Cannot be separated from lamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB-12-29

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12719 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA002657

Level: (low/med) LOW Date Received: 12/29/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/29/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| | | | |
|---------------|------------------------------|------|---|
| 108-95-2----- | Phenol | 330 | U |
| 111-44-4----- | bis(2-Chloroethyl) Ether | 330 | U |
| 95-57-8----- | 2-Chlorophenol | 330 | U |
| 541-73-1----- | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7----- | 1,4-Dichlorobenzene | 330 | U |
| 100-51-6----- | Benzyl Alcohol | 330 | U |
| 95-50-1----- | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7----- | 2-Methylphenol | 330 | U |
| 108-60-1----- | bis(2-Chloroisopropyl) Ether | 330 | U |
| 106-44-5----- | 4-Methylphenol | 330 | U |
| 621-64-7----- | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1----- | Hexachloroethane | 330 | U |
| 98-95-3----- | Nitrobenzene | 330 | U |
| 78-59-1----- | Isophorone | 330 | U |
| 88-75-5----- | 2-Nitrophenol | 330 | U |
| 105-67-9----- | 2,4-Dimethylphenol | 330 | U |
| 65-85-0----- | Benzoic Acid | 1600 | U |
| 111-91-1----- | bis(2-Chloroethoxy) Methane | 330 | U |
| 120-83-2----- | 2,4-Dichlorophenol | 330 | U |
| 120-82-1----- | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3----- | Naphthalene | 330 | U |
| 106-47-8----- | 4-Chloroaniline | 330 | U |
| 87-68-3----- | Hexachlorobutadiene | 330 | U |
| 59-50-7----- | 4-Chloro-3-methylphenol | 330 | U |
| 91-57-6----- | 2-Methylnaphthalene | 330 | U |
| 77-47-4----- | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2----- | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4----- | 2,4,5-Trichlorophenol | 1600 | U |
| 91-58-7----- | 2-Chloronaphthalene | 330 | U |
| 88-74-4----- | 2-Nitroaniline | 1600 | U |
| 131-11-3----- | Dimethyl Phthalate | 330 | U |
| 208-96-8----- | Acenaphthylene | 330 | U |
| 606-20-2----- | 2,6-Dinitrotoluene | 330 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB-12-29

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12719 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA002657

Level: (low/med) LOW Date Received: 12/29/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/29/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug, L or ug/Kg) UG/KG Q

| | | | |
|----------------|-----------------------------|------|----|
| 99-09-2----- | 3-Nitroaniline | 1600 | U |
| 83-32-9----- | Acenaphthene | 330 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 1600 | U |
| 100-02-7----- | 4-Nitrophenol | 1600 | U |
| 132-64-9----- | Dibenzofuran | 330 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 330 | U |
| 84-66-2----- | Diethylphthalate | 330 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7----- | Fluorene | 330 | U |
| 100-01-6----- | 4-Nitroaniline | 1600 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 86-30-6----- | N-Nitrosodiphenylamine (1) | 330 | U |
| 122-66-7----- | 1,2-Diphenylhydrazine | 330 | U |
| 101-55-3----- | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1----- | Hexachlorobenzene | 330 | U |
| 87-86-5----- | Pentachlorophenol | 330 | U |
| 85-01-8----- | Phenanthrene | 330 | U |
| 120-12-7----- | Anthracene | 330 | U |
| 84-74-2----- | Di-n-Butylphthalate | 330 | U |
| 206-44-0----- | Fluoranthene | 330 | U |
| 129-00-0----- | Pyrene | 330 | U |
| 85-68-7----- | Butylbenzylphthalate | 330 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 660 | U |
| 56-55-3----- | Benzo(a)anthracene | 330 | U |
| 218-01-9----- | Chrysene | 330 | U |
| 117-81-7----- | bis(2-Ethylhexyl) Phthalate | 170 | BJ |
| 117-84-0----- | Di-n-octylphthalate | 330 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 330 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 330 | U |
| 50-32-8----- | Benzo(a)pyrene | 330 | U |
| 193-39-5----- | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 330 | U |

(1) - Cannot be separated from _____ amine

F-528

2

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB_12_30

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12719 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ALBA002658

Level: (low/med) LOW Date Received: 12/30/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/30/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N PH: _____ Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | | |
|----------|------------------------------|------|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl) Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl) Ether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 65-85-0 | Benzoic Acid | 1600 | U |
| 111-91-1 | bis(2-Chloroethoxy) Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 1600 | U |
| 131-11-3 | Dimethyl Phthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

RB_12_30

Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S12719 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 12719003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA002658

Level: (low/med) LOW Date Received: 12/30/88

% Moisture: not dec. 0 dec. _____ Date Extracted: 12/30/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/89

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1.00

| CAS NO. | COMPOUND | CONCENTRATION UNITS:
(ug/L or ug/Kg) <u>UG/KG</u> | Q |
|----------------|----------------------------|------------------------------------------------------|----|
| 99-09-2----- | 3-Nitroaniline | 1600 | U |
| 83-32-9----- | Acenaphthene | 330 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 1600 | U |
| 100-02-7----- | 4-Nitrophenol | 1600 | U |
| 132-64-9----- | Dibenzofuran | 330 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 330 | U |
| 84-66-2----- | Diethylphthalate | 330 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7----- | Fluorene | 330 | U |
| 100-01-6----- | 4-Nitroaniline | 1600 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 25-30-6----- | N-Nitrosodiphenylamine (1) | 330 | U |
| 122-66-7----- | 1,2-Diphenylhydrazine | 330 | U |
| 101-55-3----- | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1----- | Hexachlorobenzene | 330 | U |
| 87-86-5----- | Pentachlorophenol | 330 | U |
| 85-01-8----- | Phenanthrene | 330 | U |
| 120-12-7----- | Anthracene | 330 | U |
| 84-74-2----- | Di-n-Butylphthalate | 330 | U |
| 206-44-0----- | Fluoranthene | 330 | U |
| 129-00-0----- | Pyrene | 330 | U |
| 85-68-7----- | Butylbenzylphthalate | 330 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 660 | U |
| 56-55-3----- | Benzo(a)anthracene | 330 | U |
| 218-01-9----- | Chrysene | 330 | U |
| 117-81-7----- | bis(2-Ethylhexyl)Phthalate | 70 | BU |
| 117-84-0----- | Di-n-octylphthalate | 330 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 330 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 330 | U |
| 50-32-8----- | Benzo(a)pyrene | 330 | U |
| 193-39-5----- | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 330 | U |

(1) - Cannot be separated from N,N'-dimethylaniline

25

KDD21859

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 12719001
 Client Sample ID: RB 12-28

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture: 0.0

Date Extracted: 12/28/87
 Date Analyzed: 01/31/88
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-----------------------------|-------|---|------------|----------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine | 330 | U | 51-28-5 | 2,4-Dinitrophenol | 1600 | U |
| 108-95-2 | Phenol | 1500 | | 100-02-7 | 4-Nitrophenol | 1600 | U |
| 62-53-3 | Aniline | 330 | U | 132-64-9 | Dibenzofuran | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U | 87-86-5 | Pentachlorophenol | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 85-01-8 | Phenanthrene | 330 | J |
| 78-59-1 | Isophorone | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 84-74-2 | Di-n-Butylphthalate | 110 | J |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 65-85-0 | Benzoic Acid | 1600 | U | 129-00-0 | Pyrene | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 85-68-7 | Butylbenzylphthalate | 330 | |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine | 660 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U | 218-01-9 | Chrysene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 100 | J |
| 87-68-3 | Hexachlorobutadiene | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 | U | 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | 191-24-2 | Benzo(g,h,i)perylene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 1600 | U | | | | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | Nitrobenzene-d5 - SS | 75 | |
| 208-96-8 | Acenaphthylene | 330 | U | | 2-Fluorobiphenyl - SS | 77 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Terphenyl-d14 - SS | 90 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | Phenol-d5 - SS | 68 | |
| 83-32-9 | Acenaphthene | 330 | U | | 2-Fluorophenol - SS | 49 | |
| | | | | | 2,4,6-Tribromophenol - SS | 71 | |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-531



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 12774005
 Client Sample ID: RB-1-4

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/04/89
 Date Analyzed: 02/13/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|--------------------------------------------|--------|-------------------------------------------|--------|
| 62-75-9 N-Nitrosodimethylamine . . . | 330 U | 51-28-5 2,4-Dinitrophenol | 1600 U |
| 108-95-2 Phenol | 330 U | 100-02-7 4-Nitrophenol | 1600 U |
| 62-53-3 Aniline | 330 U | 132-64-9 Dibenzofuran | 330 U |
| 111-44-4 bis(2-Chloroethyl)Ether | 330 U | 121-14-2 2,4-Dinitrotoluene | 330 U |
| 95-57-8 2-Chlorophenol | 330 U | 84-66-2 Diethylphthalate | 330 U |
| 541-73-1 1,3-Dichlorobenzene | 330 U | 7005-72-3 4-Chlorophenyl-phenylether | 330 U |
| 106-46-7 1,4-Dichlorobenzene | 330 U | 86-73-7 Fluorene | 330 U |
| 100-51-6 Benzyl Alcohol | 330 U | 100-01-6 4-Nitroaniline | 1600 U |
| 95-50-1 1,2-Dichlorobenzene | 330 U | 534-52-1 4,6-Dinitro-2-methylphenol | 1600 U |
| 95-48-7 2-Methylphenol | 330 U | 36-30-6 N-Nitrosodiphenylamine (1) | 330 U |
| 33638-32-9 bis(2-Chloroisopropyl)Ether | 330 U | 122-66-7 1,2-Diphenylhydrazine . . | 330 U |
| 106-44-5 4-Methylphenol | 330 U | 101-55-3 4-Bromophenyl-phenylether | 330 U |
| 621-64-7 N-Nitroso-Di-n-Propylamine | 330 U | 118-74-1 Hexachlorobenzene | 330 U |
| 67-72-1 Hexachloroethane | 330 U | 87-86-5 Pentachlorophenol | 330 U |
| 98-95-3 Nitrobenzene | 330 U | 85-01-8 Phenanthrene | 330 U |
| 78-59-1 Isophorone | 330 U | 120-12-7 Anthracene | 330 U |
| 88-75-5 2-Nitrophenol | 330 U | 84-74-2 Di-n-Butylphthalate | 330 U |
| 105-67-9 2,4-Dimethylphenol | 330 U | 206-44-0 Fluoranthene | 330 U |
| 105-67-9 Benzoic Acid | 1600 U | 129-00-0 Pyrene | 330 U |
| 111-91-1 bis(2-Chloroethoxy)Methane | 330 U | 85-68-7 Butylbenzylphthalate | 330 U |
| 120-83-2 2,4-Dichlorophenol | 330 U | 91-94-1 3,3'-Dichlorobenzidine | 660 U |
| 120-82-1 1,2,4-Trichlorobenzene | 330 U | 56-55-3 Benzo(a)anthracene | 330 U |
| 91-20-3 Naphthalene | 330 U | 218-01-9 Chrysene | 330 U |
| 106-47-8 4-Chloroaniline | 330 U | 117-81-7 bis(2-Ethylhexyl)Phthalate | 330 U |
| 87-68-3 Hexachlorobutadiene | 330 U | 117-84-0 Di-n-octylphthalate | 330 U |
| 59-50-7 4-Chloro-3-methylphenol | 330 U | 205-99-2 Benzo(b)fluoranthene | 330 U |
| 91-57-6 2-Methylnaphthalene | 330 U | 207-08-9 Benzo(k)fluoranthene | 330 U |
| 77-47-4 Hexachlorocyclopentadiene | 330 U | 50-32-8 Benzo(a)pyrene | 330 U |
| 88-06-2 2,4,6-Trichlorophenol | 330 U | 193-39-5 Indeno(1,2,3-cd)Pyrene | 330 U |
| 95-95-4 2,4,5-Trichlorophenol | 1600 U | 53-70-3 Dibenz(a,h)Anthracene | 330 U |
| 91-58-7 2-Chloronaphthalene | 330 U | 191-24-2 Benzo(g,h,i)perylene | 330 U |
| 88-72-4 2-Nitroaniline | 1600 U | | |
| 131-11-3 Dimethyl Phthalate | 330 U | Nitrobenzene-d5 - SS | 48 |
| 008-96-8 Acenaphthylene | 330 U | 2-Fluorobiphenyl - SS | 68 |
| 006-20-2 2,6-Dinitrotoluene | 330 U | Terphenyl-d14 - SS | 96 |
| 99-09-2 3-Nitroaniline | 1600 U | Phenol-d5 - SS | 55 |
| 63-32-5 Acenaphthene | 330 U | 2-Fluorophenol - SS | 40 |
| | | 2,4,6-Tribromophenol - SS | 66 |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- R - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

KESTON ANALYTICS
1720 LOPPAINE AVE. SUITE 100
STOCKTON CA 95210 209 957-1425

LOW MOLECULAR-WEIGHT ORGANICS ANALYSIS

LAB REFERENCE NUMBER: 99M2805-04
CLIENT SAMPLE ID: RB-12-13 BLK POP DISCLOS
REPORT DATE: 01-20-1989

CLIENT NAME: CH2M HILL
FILE ID: 99M2805133
BLANK ID: 99M2805193
SAMPLE TYPE: SOIL/SEDIMENT/SOLIDS

DATE SAMPLED:
DATE RECEIVED: 01/13/89
DATE EXTRACTED:
DATE ANALYSED: 01/20/89

| | | | |
|--------|------------------------------|--------|-----------------------------|
| 330 U | n-nitrosodimethylamine | 330 U | dibenzofuran |
| 330 U | phenol | 330 U | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis 2-chloroethoxy ether | 330 U | diethyl phthalate |
| 330 U | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 330 U | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,3-dichlorobenzene | 330 U | n-nitrosodimethylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis 2-chloroisopropoxy ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 1600 U | pentachlorophenol |
| 330 U | n-nitrosodimethylamine | 330 U | phenanthrene |
| 330 U | hexachlorocyclopentadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 160 U | dimethyl phthalate |
| 330 U | isopropylene | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 330 U | cinchonine |
| 1600 U | benzoic acid | 330 U | 2,3-dimethyl phthalate |
| 330 U | bis 2-chloroisopropoxy ether | 330 U | 1,3-dichlorobenzene |
| 330 U | 2,4-dichlorophenol | 330 U | benzo a anthracene |
| 330 U | 1,2,4-trichlorobenzene | 45 U | bis 2-ethyl hexyl phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-nitroaniline | 330 U | dimethyl phthalate |
| 330 U | hexachlorocyclopentadiene | 330 U | benzo b fluoranthene |
| 330 U | 4-nitro-2-methylphenol | 330 U | benzo c fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo a pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno 1,2,3-cd pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz a,h anthracene |
| 1600 U | 2,4,6-trichlorophenol | 330 U | benzo g,h,i benylene |
| 330 U | 2-chloronaphthalene | | |
| 1600 U | 2-nitroaniline | | |
| 330 U | diethyl phthalate | | |
| 330 U | acenaphthylene | | |
| 1600 U | 3-nitroaniline | | |
| 330 U | acenaphthene | | |
| 1600 U | 2,4-dinitrophenol | | |
| 1600 U | 4-nitrophenol | | |

RESULT UNITS: ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR: 1

U indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
* indicates an estimated trace value.

ANALYST

APPROVED BY:

R. F. Cane

WESTON ANAL. 7005
1721 LOPRAINE AVE, SUITE 102
STOCKTON CA 95210 209 957-3405

SEMIVOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER 93010029-10
CLIENT SAMPLE ID 93-12-13
REPORT DATE 01-20-1993

WWT NAME : CH2M HILL
JOB : 9270
BLANK ID : 93M28N0152
SAMPLE TYPE : SOIL/SEDIMENT SOLIDS

DATE SAMPLED : 12/28/92
DATE RECEIVED : 01/17/93
DATE EXTRACTED : 12/13/92
DATE ANALYSED : 01/17/93

| | | | |
|--------|-------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-dimethylaniline | 330 U | o-chloroaniline |
| 330 U | phenol | 330 U | 2,4-dimethylphenol |
| 330 U | aniline | 330 U | 2,6-dimethylphenol |
| 330 U | bis(2-chloroethoxy) ether | 330 U | diethyl phthalate |
| 330 U | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,2-dichlorobenzene | 330 U | fluorene |
| 330 U | 1,4-dichlorobenzene | 1500 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1500 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodimethylaniline |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropoxy) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 1500 U | penta-chlorophenol |
| 330 U | n-nitroso-dimethylamine | 330 U | phenanthrene |
| 330 U | hexachlorocyclopentadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 150 U | o-chloro-p-chloro benzene |
| 330 U | stearic acid | 330 U | fluoranthene |
| 330 U | 2-chlorophenol | 1500 U | benzofluorene |
| 330 U | 2,4-dimethylphenol | 330 U | pyrene |
| 1500 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroisopropoxy) ether | 660 U | 3,3'-dichlorodiphenyl ether |
| 330 U | 2,4-dichlorophenol | 330 U | benzo a anthracene |
| 330 U | 1,2,4-trichlorobenzene | 330 U | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chlorophenyl ether | 330 U | di-n-butyl phthalate |
| 330 U | hexachlorocyclopentadiene | 330 U | benzo b fluoranthene |
| 330 U | 4-chloro-2-methylphenol | 330 U | benzo k fluoranthene |
| 330 U | 2-methyl naphthalene | 330 U | benzo a pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno 1,2,3-cd pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | 6-benzofluoranthene |
| 1500 U | 2,4,6-trichlorophenol | 330 U | benzo g,h,i perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1500 U | 2-nitroaniline | 71 | 2-fluorophenol SS(1) |
| 330 U | diethyl phthalate | 103 | phenol-d6 SS(1) |
| 330 U | acenaphthylene | 67 | nitrobenzene-d5 SS(1) |
| 1500 U | 3-nitroaniline | 63 | 2-fluorobiphenyl |
| 330 U | acenaphthene | 73 | 2,4,6-trichlorophenol SS(1) |
| 1500 U | 2,4-dinitrophenol | 63 | p-terphenyl-d14 SS(1) |
| 1500 U | 4-nitrophenol | | |

RESULTS UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
indicates an estimated trace value.

ANALYST

th

F-534

APPROVED BY

P.F. Lowery

KESTON ANALYTICS
7720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC MS SEMI-VO FILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8901S037-05
CLIENT SAMPLE ID : RB-12-19
REPORT DATE : 02-01-1989

SENT NAME : CH2M HILL
ID : 89M38N0187
BLANK ID : 89M38N0187
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED :
DATE ANALYSED : 01/21/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | dibenzofuran |
| 330 U | phenol | 330 U | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 330 U | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 330 U | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 1600 U | pentachlorophenol |
| 330 U | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 330 U | di-n-butyl phthalate |
| 330 U | isochlorane | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 330 U | pyrene |
| 1600 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 U | 2,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo(a)anthracene |
| 330 U | 1,2,4-trichlorobenzene | 330 U | bis(2-ethylhexyl)phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzo(b)fluoranthene |
| 330 U | 4-chloro-2-methylphenol | 330 U | benzo(k)fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno(1,2,3-cd)pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 100 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 98 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 80 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 73 | 2-fluorobiphenyl |
| 330 U | acenaphthene | 52 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 99 | p-terphenyl-d14 (SS6) |
| 1600 U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
indicates an estimated trace value.

ANALYST : _____

APPROVED BY : R.F. Conley

F-536

WESTON ANALYTICS
1720 LOPRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8901S032-01
CLIENT SAMPLE ID : 98-12-31
REPORT DATE : 01-30-1989

CLIENT NAME : CH2M HILL
FILE ID : 89N38N0195
BLANK ID :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED : 12/21/88
DATE ANALYSED : 01/22/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | cibenzofuran |
| 1400 | phenol | 330 U | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 61 J | diethyl phthalate |
| 330 U | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 330 U | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 56 J | hexachlorobenzene |
| 330 U | 4-methylphenol | 1600 U | pentachlorophenol |
| 330 U | n-nitroso-di-n-propylamine | 40 J | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 69 J | di-n-octyl phthalate |
| 330 U | isopropene | 36 J | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 330 U | pyrene |
| 1600 U | benzoic acid | 330 U | octyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) ethane | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo(a)anthracene |
| 330 U | 1,2,4-trichlorobenzene | 190 J | bis(2-ethylhexyl)phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorocyclopentadiene | 330 U | benzo(b)fluoranthene |
| 330 U | 4-chloro-3-methylphenol | 330 U | benzo(k)fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno(1,2,3-cd)pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | 4-benz(3,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 71 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 56 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 48 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 56 | 2-fluorobiphenyl |
| 330 U | acenaphthene | 73 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 97 | 3-terphenyl-d14 (SS6) |
| 1600 U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

J = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

REVIEWED BY :

F-537

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB-02-23-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 02/23/89
 Date Analyzed: 03/08/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | UG/L | | CAS Number | | UG/L |
|------------|-----------------------------|------|---|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 | U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 | U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 | U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 | U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 | U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 65-0 | Benzoic Acid | 50 | U | 129-00-0 | Pyrene | 10 U |
| 101-91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 | U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 | U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 | U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 | U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 | U | 131-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 | U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | Nitrobenzene-d5 - SS . . . | 75 |
| 208-96-8 | Acenaphthylene | 10 | U | | 2-Fluorobiphenyl - SS . . | 76 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Terphenyl-d14 - SS | 86 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | Phenol-d5 - SS | 79 |
| 83-32-9 | Acenaphthene | 10 | U | | 2-Fluorophenol - SS . . . | 67 |
| | | | | | 2,4,6-Tribromophenol - SS | 65 |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M Hill
 Lab Sample ID: RB-02-27-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 02/27/89
 Date Analyzed: 03/13/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|------------------------------|------|------------|----------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 08-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene . . . | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS . . . | 58 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS . . | 64 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 91 |
| 3-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 64 |
| 3-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS . . . | 62 |
| | | | | 2,4,6-Tribromophenol - SS | 72 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-539

BL



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB-03-03-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 03/03/89
 Date Analyzed: 03/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 52-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 52-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 941-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 8-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 8-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-57-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 8-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 69 |
| 108-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 66 |
| 106-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 77 |
| 9-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 52 |
| 3-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 40 |
| | | | | 2,4,6-Tribromophenol - SS | 62 |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

AL



ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M HILL
Sample ID: RB-03-13-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/13/89
Date Analyzed: 03/21/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-------------------------------|------|------------|-------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 8-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 8-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 120 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 130 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 190 |
| 9-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 48 |
| 3-32-5 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 49 |
| | | | | 2,4,6-Tribromophenol - SS . . | 70 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Sample ID: RB-03-08-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/08/89
Date Analyzed: 03/22/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | UG/L | CAS Number | UG/L |
|-----------|--------------------------------------------|------------|-------------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 08-95-2 | Phenol 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 5-57-8 | 2-Chlorophenol 10 U | 84-66-2 | Diethylphthalate 10 U |
| 41-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether 10 U |
| 06-46-7 | 1,4-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 00-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 5-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 50 U |
| 5-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether 10 U | 122-66-7 | 1,2-Diphenylhydrazine 10 U |
| 06-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 7-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 10 U |
| 3-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 3-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 3-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 05-67-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 5-85-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 10 U |
| 11-1-1 | bis(2-Chloroethoxy)Methane 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 20-82-1 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 1-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 06-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 10 U |
| 1-68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 1-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 1-47-4 | Hexachlorocyclopentadiene 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 10 U |
| 1-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene 10 U |
| 1-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 1-74-4 | 2-Nitroaniline 50 U | | |
| 1-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 61 |
| 1-8-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 68 |
| 06-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 92 |
| 1-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 110 |
| 1-32-9 | Acenaphthene 10 U | | 2-Fluorophenol - SS 87 |
| | | | 2,4,6-Tribromophenol - SS 81 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

9162

F-542

BL



ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M HILL *16/12*
ab Sample ID: RB-03-06-89
lient Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/16/89
Date Analyzed: 03/28/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | ug/L | CAS Number | ug/L |
|-----------|--------------------------------------------|------------|-------------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 38-95-2 | Phenol 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 5-57-8 | 2-Chlorophenol 10 U | 84-66-2 | Diethylphthalate 10 U |
| 41-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether 10 U |
| 36-46-7 | 1,4-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 30-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 5-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 50 U |
| 5-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) 10 U |
| 3638-32-9 | bis(2-Chloroisopropyl)Ether 10 U | 122-66-7 | 1,2-Diphenylhydrazine 10 U |
| 36-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether 10 U |
| 31-64-7 | N-Nitroso-Di-n-Propylamine 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 1-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 10 U |
| 3-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 3-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 3-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 35-67-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 3-85-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 30-83-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine 20 U |
| 30-82-1 | 1,2,4-Trichlorobenzene 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 3-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 36-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 10 U |
| 3-68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 3-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 3-47-4 | Hexachlorocyclopentadiene 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 10 U |
| 3-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene 10 U |
| 3-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 3-74-4 | 2-Nitroaniline 50 U | | |
| 3-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 78 |
| 3-896-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 78 |
| 3-620-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 95 |
| 3-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 69 |
| 3-32-9 | Acenaphthene 10 U | | 2-Fluorophenol - SS 78 |
| | | | 2,4,6-Tribromophenol - SS 74 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Client Name: CH2M Hill
Sample ID: RB-03-20-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/20/89
Date Analyzed: 03/28/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|---------------------------------|------|------------|---------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 3638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-57-7 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-11-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 7-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-7 | Benzo(b)fluoranthene | 10 U |
| 7-57-6 | 2-Methylnaphthalene | 10 U | 207-08-7 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 7-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 7-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 7-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 7-74-4 | 2-Nitroaniline | 50 U | | | |
| 11-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 52 |
| 18-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 61 |
| 16-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 89 |
| 1-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 110 |
| 1-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 100 |
| | | | | 2,4,6-Tribromophenol - SS | 83 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
S - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

F-544

Avenue, P O Box 2088
Corona 96001

916 243 5831

B6



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-03-22-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/22/89
Date Analyzed: 03/27/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|---------------------------------|------|------------|--------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 3-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 11-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 3-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 3-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 0638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 01-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 0-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 0-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 0-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 0-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 0-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 01-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 00-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 00-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 0-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 0-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 0-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 0-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 0-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 0-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 0-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 0-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 0-74-4 | 2-Nitroaniline | 50 U | | | |
| 01-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 71 |
| 09-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 74 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 72 |
| 0-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 70 |
| 0-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 63 |
| | | | | 2,4,6-Tribromophenol - SS . . | 50 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form 1

CH2M HILL

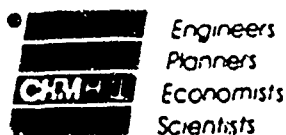
Redding
Environmental Laboratory

F-545

4 Avenue, P O Box 2088
Hilma 96001

916 243 5831

62



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: RB-03-28-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/28/89
Date Analyzed: 04/06/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|------------------------------|------|------------|-----------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 30-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 3638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 05-77-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 0-50-7 | 4-Chloro-3-methylphenol . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 7-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 0-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 7-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 2-74-4 | 2-Nitroaniline | 50 U | | | |
| 01-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS . . . | 77 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS . . . | 81 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 88 |
| 1-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 87 |
| 1-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 71 |
| | | | | 2,4,6-Tribromophenol - SS | 78 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
R - Compound was detected in QC blank.
Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

fil



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
 Lab Sample ID: 22817-JMS
 Client Sample ID: 505

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 03/28/89
 Date Analyzed: 04/06/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-------------------------------|------|------------|---------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 150 | 100-02-7 | 4-Nitrophenol | 170 |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 86 |
| 5-57-8 | 2-Chlorophenol | 160 | 84-66-2 | Diethylphthalate | 10 U |
| 11-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 79 | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 0638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 63 | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 170 |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 99 |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 00-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 00-82-1 | 1,2,4-Trichlorobenzene . . . | 78 | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 1-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol . . . | 150 | 205-39-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 1-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 1-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 1-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 1-74-4 | 2-Nitroaniline | 50 U | | | |
| 1-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 83 |
| 8-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 84 |
| 6-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 90 |
| 1-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 97 |
| 1-32-9 | Acenaphthene | 89 | | 2-Fluorophenol - SS | 75 |
| | | | | 2,4,6-Tribromophenol - SS | 84 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: RB-03-30-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/30/89
Date Analyzed: 04/12/89
Dilution Factor: 1.0

SEMI-VOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-------------------------------|------|------------|--------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-77-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 26-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 1-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 1-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 80 |
| 28-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 82 |
| 26-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 100 |
| 1-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 76 |
| 1-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 58 |
| | | | | 2,4,6-Tribromopheno' - SS | 58 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
D - Compound was detected in QC blank.
Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-04-06-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 04/06/89
Date Analyzed: 04/15
Dilution Factor: _____

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/L | CAS Number | ug/L |
|------------|------------------------------------|------------|-------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 108-95-2 | Phenol 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 62-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 95-57-8 | 2-Chlorophenol 10 U | 84-66-2 | Diethylphthalate 10 U |
| 541-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . 10 U |
| 106-45-7 | 1,4-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 100-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 95-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . 50 U |
| 95-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . 10 U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether . 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 10 U |
| 106-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether . 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine . 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 67-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 10 U |
| 98-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 78-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 88-75-5 | 2-Nitrophenol 10 U | 64-74-2 | Di-n-Butylphthalate 10 U |
| 105-67-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 65-85-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane . 10 U | 85-68-7 | Butylbenzylphthalate 10 " |
| 120-63-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 20 " |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 91-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 105-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . 10 U |
| 68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 50-7 | 4-Chloro-3-methylphenol . . . 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 91-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . . 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 10 U |
| 91-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 88-74-4 | 2-Nitroaniline 50 U | | |
| 131-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 47 |
| 208-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 56 |
| 606-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 72 |
| 99-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 91 |
| 83-32-9 | Acenaphthene 10 U | | 2-Fluorophenol - SS 74 |
| | | | 2,4,6-Tribromophenol - SS . . 70 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

118 Railroad Avenue P O Box 2088
California 96001

916 243 5831

E-549

R

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
 Lab Sample ID: RB-04-06-89
 Client Sample ID: METHOD-BLANK

Concentration: LCW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 04/06/89
 Date Analyzed: 04/15/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-----------------------------------|------|------------|--------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 8-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 8-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| -0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 8-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 47 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 56 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 72 |
| 3-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 91 |
| 3-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 74 |
| | | | | 2,4,6-Tribromophenol - SS | 70 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 - Reported value less than quantitation limit.
 - Surrogate Standard reported as percent recovery.

CH2M HILL

Redding
 Environmental Laboratory

F-550

2nd Avenue, P O Box 2088
 California 96001

916 243 5831

BL



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: RB-04-20-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 04/20/89
Date Analyzed: 04/25/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|---------------------------------|------|------------|---------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 2 BJ |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 4 BJ |
| 1-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 1-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 1-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 1-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 1-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 61 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 68 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 60 |
| 3-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 47 |
| 3-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 40 |
| | | | | 2,4,6-Tribromophenol - SS | 67 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Redding
Environmental Laboratory

F-551

1st Avenue P O Box 2088
Newburg California 96001

916 243 5831

25



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
 Lab Sample ID: RB-04-25-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 04/25/89
 Date Analyzed: 04/25/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | ug/L | CAS Number | ug/L |
|-----------|----------------------------------------|------------|------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 08-95-2 | Phenol 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 5-57-8 | 2-Chlorophenol 10 U | 84-66-2 | Diethylphthalate 10 U |
| 11-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether 10 U |
| 06-46-7 | 1,4-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 00-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 5-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 50 U |
| 5-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) 3 BJ |
| 0638-32-9 | bis(2-Chloroisopropyl)Ether 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 10 U |
| 06-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether 10 U |
| 11-64-7 | N-Nitroso-Di-n-Propylamine 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 7-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 10 U |
| 3-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 3-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 3-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 3 BJ |
| 5-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 5-85-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 10 U |
| 1-91-1 | bis(2-Chloroethoxy)Methane 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 0-83-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 20 U |
| 0-82-1 | 1,2,4-Trichlorobenzene . . . 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| -20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 6-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 10 U |
| -68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 1-50-7 | 4-Chloro-3-methylphenol . . . 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| -57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| -47-4 | Hexachlorocyclopentadiene 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| -06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 10 U |
| -95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 10 U |
| -58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| -74-4 | 2-Nitroaniline 50 U | | |
| 1-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 58 |
| 8-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 70 |
| 6-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 98 |
| -09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 67 |
| -32-9 | Acenaphthene 10 U | | 2-Fluorophenol - SS 61 |
| | | | 2,4,6-Tribromophenol - SS . . 82 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 C - Compound was detected in QC blank.
 L - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

F-552

CH2M HILL

Redding
 Environmental Laboratory

4400 Railroad Avenue P O Box 2088
 Redding California 96001

916 243 5831



ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M HILL
 Lab Sample ID: RB-04-24-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 04/24/89
 Date Analyzed: 04/25/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-----------------------------------|------|------------|--------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 5-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 3 BJ |
| 3638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 3-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 3-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 3-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 4-50-7 | 4-Chloro-3-methylphenol | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 5-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 4-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 4-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 4-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 4-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 65 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 65 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 85 |
| 4-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 62 |
| 3-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 57 |
| | | | | 2,4,6-Tribromophenol - SS | 73 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

F-553

CH2M HILL

Redding
 Environmental Laboratory

11000 Avenue P O Box 2088
 Redding, California 96001

916 243 5831

6



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB-05-30-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 05/30/89
 Date Analyzed: 06/09/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 J |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 6-5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 74 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 77 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 87 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | |
| | | | | 2,4,6-Tribromophenol - SS | |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- 1 - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

CH2M HILL

Regional
Environmental Laboratory

Form 1

1 Railroad Avenue P.O. Box 2088
 F-554 Long California 96001

916 243 5831

RS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 5-31-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 05/31/89
Date Analyzed: 06/12/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------|------|------------|---------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 J |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 97-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 68-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 68-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 72 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 73 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 83 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 58 |
| 63-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 51 |
| | | | | 2,4,6-Tribromophenol - SS . . | 43 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB 6-2-89
 Client Sample ID: METHOD-BLANK

Concentration LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 06/02/89
 Date Analyzed: 06/13/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|-----------------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 7005-72-3 | 4-Chloropheny ¹ -phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 106-57-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 62-75-9 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS . . . | 58 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS . . | 62 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS . . . | 81 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 78 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS . . . | 67 |
| | | | | 2,4,6-Tribromophenol - SS | 89 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 R - Compound was detected in QC blank.
 - Reported value less than quantitation limit.
 ss - Surrogate Standard reported as percent recovery.

CH2M HILL

Reading
 Environmental Laboratory

F 556 Railroad Avenue P O Box 2088
 Reading, California 96001

916 243 5531

R.S



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-2-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/02/89
Date Analyzed: 06/13/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether . | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether . | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine . | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane . | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 38-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 58 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 62 |
| 506-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 81 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 78 |
| 33-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 67 |
| | | | | 2,4,5-Tribromophenol - SS . . | 89 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Regional
Environmental Laboratory

Form 1

F-557 Railroad Avenue P.O. Box 2088
Long Beach, California 90801

916 243 5831

PS



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-6-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/06/89
Date Analyzed: 06/13/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 109-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 J |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| -91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS . . . | 59 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS . . . | 61 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 82 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 78 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 67 |
| | | | | 2,4,6-Tribromophenol - SS | 90 |

- (j) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

CH2M HILL

Redding
Environmental Laboratory

F-558

3 Railroad Avenue P O Box 2088
Redding California 96001

916 243 5831

R^c



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-6-89
Parent Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 05/06/89
Date Analyzed: 05/14/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AG Number | ug/L | CAS Number | ug/L |
|------------|-----------------------------------|------------|-------------------------------|
| 40-75-9 | N-Nitrosodimethylamine | 51-28-5 | 2,4-Dinitrophenol |
| 108-95-2 | Phenol | 100-02-7 | 4-Nitrophenol |
| 60-53-3 | Aniline | 132-64-9 | Dibenzofuran |
| 111-44-4 | bis(2-Chloroethyl)Ether | 121-14-2 | 2,4-Dinitrotoluene |
| 95-57-8 | 2-Chlorophenol | 84-66-2 | Diethylphthalate |
| 541-73-1 | 1,3-Dichlorobenzene | 7005-72-3 | 4-Chlorophenyl-phenylether |
| 106-46-7 | 1,4-Dichlorobenzene | 86-73-7 | Fluorene |
| 100-51-6 | Benzyl Alcohol | 100-01-6 | 4-Nitroaniline |
| 95-50-1 | 1,2-Dichlorobenzene | 534-52-1 | 4,6-Dinitro-2-methylphenol |
| 95-48-7 | 2-Methylphenol | 86-30-6 | N-Nitrosodiphenylamine (1) |
| 99638-32-9 | bis(2-Chloroisopropyl)Ether | 122-66-7 | 1,2-Diphenylhydrazine . . . |
| 106-44-5 | 4-Methylphenol | 101-55-3 | 4-Bromophenyl-phenylether |
| 601-54-7 | N-Nitroso-Di-n-Propylamine | 118-74-1 | Hexachlorobenzene |
| 17-72-1 | Hexachloroethane | 87-86-5 | Pentachlorophenol |
| 48-95-3 | Nitrobenzene | 85-01-8 | Phenanthrene |
| 73-59-1 | Isophorone | 120-12-7 | Anthracene |
| 108-75-5 | 2-Nitrophenol | 84-74-2 | Di-n-Butylphthalate |
| 105-67-9 | 2,4-Dimethylphenol | 206-44-0 | Fluoranthene |
| 65-65-0 | Benzoic Acid | 129-00-0 | Pyrene |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 85-68-7 | Butylbenzylphthalate |
| 100-93-2 | 2,4-Dichlorophenol | 91-94-1 | 3,3'-Dichlorobenzidine . . . |
| 100-82-1 | 1,2,4-Trichlorobenzene . . . | 56-55-3 | Benzo(a)anthracene |
| 100-20-3 | Naphthalene | 218-01-9 | Chrysene |
| 100-47-8 | 4-Chloroaniline | 117-81-7 | bis(2-Ethylhexyl)Phthalate |
| 100-63-3 | Hexachlorobutadiene | 117-84-0 | Di-n-octylphthalate |
| 100-50-7 | 4-Chloro-3-methylphenol . . . | 205-99-2 | Benzo(b)fluoranthene |
| 100-57-6 | 2-Methylnaphthalene | 207-08-9 | Benzo(k)fluoranthene |
| 100-47-4 | Hexachlorocyclopentadiene | 50-32-8 | Benzo(a)pyrene |
| 100-06-2 | 2,4,6-Trichlorophenol | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . |
| 100-95-4 | 2,4,5-Trichlorophenol | 53-70-3 | Dibenz(a,h)Anthracene . . . |
| 100-58-7 | 2-Chloronaphthalene | 191-24-2 | Benzo(g,h,i)perylene |
| 100-74-4 | 2-Nitroaniline | | |
| 100-11-3 | Dimethyl Phthalate | | Nitrobenzene-d5 - SS |
| 100-95-8 | Acenaphthylene | | 2-Fluorobiphenyl - SS |
| 100-20-2 | 2,6-Dinitrotoluene | | Terphenyl-d14 - SS |
| 100-09-2 | 3-Nitroaniline | | Phenol-d5 - SS |
| 100-32-9 | Acenaphthene | | 2-Fluorophenol - SS |
| | | | 2,4,6-Tribromophenol - SS . . |

- 1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
S - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL
2000 California Avenue, P.O. Box 2000
Folsom, California 95630

F-559

9-6241543



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-6-89
Parent Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 06/06/89
Date Analyzed: 06/14/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 941-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 B |
| 99638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 601-64-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 100-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 100-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 67-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 99-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 98-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 98-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 59 |
| 108-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 61 |
| 106-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 82 |
| 93-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 78 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 67 |
| | | | | 2,4,6-Tribromophenol - SS . . | 90 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-7-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/07/89
Date Analyzed: 06/16/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------|------|------------|----------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . . | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . . | 5 B |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether . . | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . . | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine . . | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane . . | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . . | 10 U |
| 107-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 69-50-7 | 4-Chloro-3-methylphenol | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 69-05-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 93-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 47 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 49 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 110 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 57 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 62 |
| | | | | 2,4,6-Tribromophenol - SS . . . | 130 |

(1) - Cannot be separated from diphenylamine

U - Compound analyzed for but not detected

B - Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

3030 Avenue P.O. Box 4084
St. Louis, MO 63108

316 243 5831

F-561



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-7-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 06/07/89
Date Analyzed: 06/15/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-------------|---------------------------------|------|------------|---------------------------------|------|
| 22-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 103-95-2 | Phenol : | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 611-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . . | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 BJ |
| 35-538-32-9 | bis(2-Chloroisopropyl)Ether . . | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine . . | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 68-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 106-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 106-67-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 101-91-1 | bis(2-Chloroethoxy)Methane . . | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 100-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 100-92-1 | 1,2,4-Trichlorobenzene | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 101-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . | 10 U |
| 106-69-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 101-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 106-47-4 | Hexachlorocyclopentadiene . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 106-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 106-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 101-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 106-74-4 | 2-Nitroaniline | 50 U | | | |
| 101-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 47 |
| 106-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 49 |
| 106-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 110 |
| 106-03-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 57 |
| 106-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 62 |
| | | | | 2,4,6-Tribromophenol - SS . . | 130 |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
Surrogate Standard reported as percent recovery.



CH2M HILL
Environmental
Laboratory

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-06-09-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/09/8
Date Analyzed: 06/09/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|--------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 B |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-54-7 | N-Nitroso-Di-n-Propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 98-95-7 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Phenol | 10 U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 53-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 98-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 99-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 70 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 71 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 80 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 55 |
| 82-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 59 |
| | | | | 2,4,6-Tribromophenol - SS . . | 66 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Environmental
Laboratory

F-563

3931 Road Avenue P.O. Box 2088
Ft. Ord, California 96301

916 243 5831

RS



CH2M HILL
Environmental
Solutions

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB-06-09-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 06/09/89
Date Analyzed: 06/09/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------|------|------------|----------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-92-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . . | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 B |
| 39638-32-9 | bis(2-Chloroisopropyl)Ether . . | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . . | 10 U |
| 21-64-7 | N-Nitroso Di-n-Propylamine . . | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-71-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 10 U |
| 95-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 93-75-5 | 2-Nitrophenol | 10 U | 84-71-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 67-25-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 11-1 | bis(2-Chloroethoxy)Methane . . | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . . | 10 U |
| 37-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 93-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 93-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 70 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 71 |
| 206-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 80 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 55 |
| 93-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 59 |
| | | | | 2,4,6-Tribromophenol - SS . . . | 66 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

CH2M HILL

Environmental
Solutions

916 Road Avenue, P.O. Box 2088
Ft. 564, California 94721

916 243 5831

R-5



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB 6-13-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 06/13/89
 Date Analyzed: 06/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------|------|------------|---------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 641-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 9 BJ |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 98-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 83-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 2 J |
| 7-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 35-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 105-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 67-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 89-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 67 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 66 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 88 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 77 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 62 |
| | | | | 2,4,6-Tribromophenol - SS | 92 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank
 . - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-14-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 06/14/89
Date Analyzed: 06/21/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|-------------------------------|------|--|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | | 100-02-7 | 4-Nitrophenol | 50 U |
| 62-53-3 | Aniline | 10 U | | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 U | | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 U | | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 J |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 U | | 87-86-5 | Pentachlorophenol | 50 U |
| 98-95-3 | Nitrobenzene | 10 U | | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 U | | 120-12-7 | Anthracene | 10 U |
| 98-75-5 | 2-Nitrophenol | 10 U | | 84-14-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | | 206-42-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | | 129-00-0 | Pyrene | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | | 85-68-7 | Butylbenzylphthalate | 10 U |
| 100-83-2 | 2,4-Dichlorophenol | 10 U | | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 100-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 U | | 218-01-9 | Chrysene | 10 U |
| 105-47-8 | 4-Chloroaniline | 10 U | | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 98-74-4 | 2-Nitroaniline | 50 U | | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | | Nitrobenzene-d5 - SS | 62 |
| 208-96-8 | Acenaphthylene | 10 U | | | 2-Fluorobiphenyl - SS | 62 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | | Terphenyl-d14 - SS | 81 |
| 99-09-2 | 3-Nitroaniline | 50 U | | | Phenol-d5 - SS | 75 |
| 93-32-9 | Acenaphthene | 10 U | | | 2-Fluorophenol - SS | 59 |
| | | | | | 2,4,6-Tribromophenol - SS . . | 81 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
S - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: RB 6-14-89
 Client Sample ID: METHOD-BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 06/14/89
 Date Analyzed: 06/22/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------------|------|------------|--------------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 9 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 1 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 107-7-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 83-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 83-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 54 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 57 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 64 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 72 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 59 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 66 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
- " - Compound analyzed for but not detected.
- Compound was detected in QC blank.
- Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Regional Laboratory

F-568 10000 Avenue P.O. Box 2068
 Irving, Texas 75039

916 243 5831

ES



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: RB 6-16-89
Client Sample ID: METHOD-BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 06/16/89
Date Analyzed: 06/27/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 103-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 B3 |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 89-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 100-92-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 99-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 64 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 68 |
| 008-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 80 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 45 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 31 |
| 93-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS . . | 73 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

(1) - Ca not be separated from diphenylamine.

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

) - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 2415882
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 08/30/89
Date Analyzed: 09/09/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 7 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 85-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| -91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 77 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 72 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 94 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 39 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 44 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 70 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
S - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 24185B1
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/01/89
Date Analyzed: 09/22/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-1-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 210-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 83 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 81 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 43 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 45 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS . . | 90 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

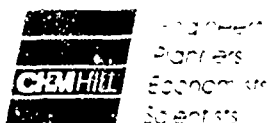
CH2M HILL

Reading Environmental Laboratory

Reading, California 96003

9-5 244-2227

F-571



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 24191B1
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/05/89
Date Analyzed: 09/23/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 11-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 123-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 29-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 61 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 59 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 96 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 74 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 73 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS . . | 78 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 2420281
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 09/05/89
Date Analyzed: 09/23/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/L | CAS Number | ug/L |
|------------|------------------------------------|------------|------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 108-95-2 | Phenol 10 U | 132-64-9 | Dibenzofuran 10 U |
| 62-53-3 | Aniline 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 84-66-2 | Diethylphthalate 10 U |
| 95-57-8 | 2-Chlorophenol 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether 10 U |
| 541-73-1 | 1,3-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 106-46-7 | 1,4-Dichlorobenzene 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 100-51-6 | Benzyl Alcohol 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 50 U |
| 95-50-1 | 1,2-Dichlorobenzene 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) 5 BJ |
| 95-48-7 | 2-Methylphenol 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 10 U | 101-55-3 | 4-Bromophenyl-phenylether 10 U |
| 106-44-5 | 4-Methylphenol 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine 10 U | 87-86-5 | Pentachlorophenol 50 U |
| 67-72-1 | Hexachloroethane 10 U | 85-01-8 | Phenanthrene 10 U |
| 98-95-3 | Nitrobenzene 10 U | 120-12-7 | Anthracene 10 U |
| 78-59-1 | Isophorone 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 88-75-5 | 2-Nitrophenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 105-67-9 | 2,4-Dimethylphenol 10 U | 129-00-0 | Pyrene 10 U |
| 65-85-0 | Benzoic Acid 50 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 20 U |
| 120-83-2 | 2,4-Dichlorophenol 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 10 U | 218-01-9 | Chrysene 10 U |
| 91-20-3 | Naphthalene 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 10 U |
| 106-47-8 | 4-Chloroaniline 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 87-68-3 | Hexachlorobutadiene 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 91-57-6 | 2-Methylnaphthalene 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 77-47-4 | Hexachlorocyclopentadiene 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol 50 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 91-58-7 | 2-Chloronaphthalene 10 U | | |
| 88-74-4 | 2-Nitroaniline 50 U | | Nitrobenzene-d5 - SS 61 |
| 131-11-3 | Dimethyl Phthalate 10 U | | 2-Fluorobiphenyl - SS 59 |
| 208-96-8 | Acenaphthylene 10 U | | Terphenyl-d14 - SS 96 |
| 606-20-2 | 2,6-Dinitrotoluene 10 U | | Phenol-d5 - SS 74 |
| 99-09-2 | 3-Nitroaniline 50 U | | 2-Fluorophenol - SS 73 |
| 83-32-9 | Acenaphthene 10 U | | 2,4,6-Tribromophenol - SS . . 78 |
| 51-28-5 | 2,4-Dinitrophenol 50 U | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M Hill
Sample ID: 24246B2
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/14/89
Date Analyzed: 09/27/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L | |
|------------|-----------------------------------|------|---|------------|---------------------------------|------|---|
| 62-75-9 | N-Nitrosodimethylamine | 10 | U | 100-02-7 | 4-Nitrophenol | 50 | U |
| 108-95-2 | Phenol | 10 | U | 132-64-9 | Dibenzofuran | 10 | U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 | U | 84-66-2 | Diethylphthalate | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 86-73-7 | Fluorene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U | 100-01-6 | 4-Nitroaniline | 50 | U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 | U | 87-86-5 | Pentachlorophenol | 50 | U |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 | U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 10 | U |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate | 10 | U |
| 11-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 | U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 | U | 218-01-9 | Chrysene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 | U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 205-99-2 | Benzo(b)fluoranthene | 10 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 | U | 207-08-9 | Benzo(k)fluoranthene | 10 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 | U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS | 67 | |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS | 64 | |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS | 110 | |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 78 | |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS | 77 | |
| 83-32-9 | Acenaphthene | 10 | U | | 2,4,6-Tribromophenol - SS . . | 76 | |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

Form 1



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 2426582
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 09/14/89
Date Analyzed: 09/27/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 67 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 64 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 506-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 78 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 77 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 76 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

FORM 1

CH2M HILL

Redding Environmental Laboratory, 5090

ad. Redding, California 96003

916.244.5227

F-575

L-7

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 24272B1
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/18/89
Date Analyzed: 10/02/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/L | CAS Number | ug/L |
|------------|------------------------------------|------------|------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 10 U | 100-02-7 | 4-Nitrophenol 50 U |
| 108-95-2 | Phenol 10 U | 132-64-9 | Dibenzofuran 10 U |
| 62-53-3 | Aniline 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 84-66-2 | Diethylphthalate 10 U |
| 95-57-8 | 2-Chlorophenol 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . 10 U |
| 541-73-1 | 1,3-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 106-46-7 | 1,4-Dichlorobenzene 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 100-51-6 | Benzyl Alcohol 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . 50 U |
| 95-50-1 | 1,2-Dichlorobenzene 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . 10 U |
| 95-48-7 | 2-Methylphenol 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether . 10 U | 101-55-3 | 4-Bromophenyl-phenylether . 10 U |
| 106-44-5 | 4-Methylphenol 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine . 10 U | 87-86-5 | Pentachlorophenol 50 U |
| 67-72-1 | Hexachloroethane 10 U | 85-01-8 | Phenanthrene 10 U |
| 98-95-3 | Nitrobenzene 10 U | 120-12-7 | Anthracene 10 U |
| 78-59-1 | Isophorone 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 88-75-5 | 2-Nitrophenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 105-67-9 | 2,4-Dimethylphenol 10 U | 129-00-0 | Pyrene 10 U |
| 35-0 | Benzoic Acid 50 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 91-1 | bis(2-Chloroethoxy)Methane . 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 20 U |
| 120-83-2 | 2,4-Dichlorophenol 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 10 U | 218-01-9 | Chrysene 10 U |
| 91-20-3 | Naphthalene 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . 10 U |
| 106-47-8 | 4-Chloroaniline 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 87-68-3 | Hexachlorobutadiene 10 U | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 91-57-6 | 2-Methylnaphthalene 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 77-47-4 | Hexachlorocyclopentadiene . 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol 50 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 91-58-7 | 2-Chloronaphthalene 10 U | | |
| 88-74-4 | 2-Nitroaniline 50 U | | Nitrobenzene-d5 - SS 92 |
| 131-11-3 | Dimethyl Phthalate 10 U | | 2-Fluorobiphenyl - SS 82 |
| 208-96-8 | Acenaphthylene 10 U | | Terphenyl-d14 - SS 120 |
| 606-20-2 | 2,6-Dinitrotoluene 10 U | | Phenol-d5 - SS 43 |
| 99-09-2 | 3-Nitroaniline 50 U | | 2-Fluorophenol - SS 41 |
| 83-32-9 | Acenaphthene 10 U | | 2,4,6-Tribromophenol - SS . . 20 |
| 51-28-5 | 2,4-Dinitrophenol 50 U | | |

(1) - Cannot be separated from diphenylamine.

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

1 - Reported value less than quantitation limit

1 - Laboratory standard reported at percent recovery

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 2430481
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 09/18/89
Date Analyzed: 10/02/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 3-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 38-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 92 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 82 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 43 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 41 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 72 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 24313B1
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/20/89
Date Analyzed: 10/03/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 5-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| -91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 98 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 84 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 140 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 100 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 94 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 110 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
' - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 2433181
Client Sample ID: SBLKW

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/20/89
Date Analyzed: 10/03/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|-------------------------------|------|---|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 | U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 | U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 BJ |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 | U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 | U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 | U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS | 98 |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS | 84 |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS | 140 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 100 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS | 94 |
| 83-32-9 | Acenaphthene | 10 | U | | 2,4,6-Tribromophenol - SS . . | 110 |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding Environmental Laboratory, 5090 Caterpillar Road, Redding, California 96003

916.244 5227

F-579

6-7

CH2M
engineers
Planners
Economists
Laboratory
CH2M HILL/LRD
Lab Sample ID: 2433781
Client Sample ID: SBLKW

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/22/89
Date Analyzed: 10/05/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 17-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 90 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 78 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,5-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 93 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 90 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 99 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.


Form I

CH2M HILL

Reading Environmental Laboratory, 5000 . . . Road, Redding, California 96003

916 244 5227

F-580


CH2M HILL
 Planners
 Economists
 Scientists
 Engineers
 Architects
 Environmental
 Scientists
 Labora CH2M HILL/LRD
 Lab Sample ID: 2435081
 Client Sample ID: S8LKW

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW Date Extracted: 09/22/89
 Sample Matrix: WATER Date Analyzed: 10/05/89
 Percent Moisture: Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------------|------|------------|----------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 90 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 78 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 110 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 93 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 90 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | 2,4,6-Tribromophenol - SS | 99 |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists

Laboratory: CH2M HILL/LRD
Lab Sample ID: 24372B1
Client Sample ID: SBLKW1

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/26/89
Date Analyzed: 10/11/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------|------|------------|---------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 218-01-9 | Chrysene | 10 U |
| J-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 6 BJ |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 75 |
| 208-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 81 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 110 |
| 99-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 44 |
| 83-32-9 | Acenaphthene | 10 U | | 2-Fluorophenol - SS | 51 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | 2,4,6-Tribromophenol - SS . . . | 69 |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding Environmental Laboratory, 5090 Caterpillar Road, Redding, California 96003

916 244 5227

F-582



Engineers

Planners

Economists

Scientists

Laboratory: CH2M HILL/LRD
 Lab Sample ID: 2438781
 Client Sample ID: SBLKW1

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____


Date Extracted: 09/26/89
 Date Analyzed: 10/11/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 6 BJ |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 75 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 81 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 44 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 51 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 69 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I


Engineers
Planners
Economists
 Labor Sciences
 CH2M HILL/LRD
 Lab Sample ID: 2440081
 Client Sample ID: SBLKW1

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW Date Extracted: 09/28/89
 Sample Matrix: WATER Date Analyzed: 10/17/89
 Percent Moisture: Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 92-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| J-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 92 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 87 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 70 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 65 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 73 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory: CH2M HILL/LRD
Lab Sample ID: 24406B1
Client Sample ID: SBLKW1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:


Date Extracted: 09/28/89
Date Analyzed: 10/17/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------------|------|------------|--------------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 92 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 87 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 70 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 65 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 73 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I


Engineers
Planners
Economists
 Labor **CH2M HILL/LRD**
 Lab Sample ID: **24451B1**
 Client Sample ID: **SBLKW1**

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW Date Extracted: 10/03/89
 Sample Matrix: WATER Date Analyzed: 10/17/89
 Percent Moisture: _____ Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 50 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-7 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-71-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 10-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 50 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 59 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 66 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS . . . | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 58 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 64 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 70 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24868B1
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 11/16/89
 Date Analyzed: 11/22/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 52-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 15 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 6 BJ |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 66 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 67 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 506-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 67 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 69 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 66 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24898B1
 Int Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/16/89
 Date Analyzed: 12/05/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 5 B) |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 100-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 75 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 80 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 83 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 78 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 64 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24925B1
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 11/20/89
 Date Analyzed: 12/06/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-90-7 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-55-1 | Isophorone | U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloromethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 118-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-58-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 52-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 15 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 27 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 78 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 46 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 47 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 39 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

(1) - Cannot be separated from diphenylamine.

U - Compound analyzed for but not detected.

- Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Form 1

F-589

PS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24934B1
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 11/20/89
 Date Analyzed: 12/06/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 100-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | Nitrobenzene-d5 - SS . . . | 15 |
| 88-74-4 | 2-Nitroaniline | 50 U | | 2-Fluorobiphenyl - SS . . | 27 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Terphenyl-d14 - SS | 78 |
| 208-96-8 | Acenaphthylene | 10 U | | Phenol-d5 - SS | 46 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | 2-Fluorophenol - SS . . . | 47 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2,4,6-Tribromophenol - SS | 39 |
| 83-32-9 | Acenaphthene | 10 U | | | |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-590

25

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
Lab Sample ID: 24939B1
Client Sample ID: SBLKW1

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 11/22/89
Date Analyzed: 12/14/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 29 B |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 13 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 20 B |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | Nitrobenzene-d5 - SS . . . | 65 |
| 88-74-4 | 2-Nitroaniline | 50 U | | 2-Fluorobiphenyl - SS . . | 68 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Terphenyl-d14 - SS | 96 |
| 208-96-8 | Acenaphthylene | 10 U | | Phenol-d5 - SS | 78 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | 2-Fluorophenol - SS . . . | 74 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2,4,6-Tribromophenol - SS | 68 |
| 83-32-9 | Acenaphthene | 10 U | | | |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

(1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Page 2

F-591

کے

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24954B1
 Int Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/27/89
 Date Analyzed: 12/14/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 8 BJ |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 8 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | Nitrobenzene-d5 - SS | 65 |
| 88-74-4 | 2-Nitroaniline | 50 U | | 2-Fluorobiphenyl - SS | 65 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Terphenyl-d14 - SS | 96 |
| 208-96-8 | Acenaphthylene | 10 U | | Phenol-d5 - SS | 36 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | 2-Fluorophenol - SS | 34 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2,4,6-Tribromophenol - SS . . | 30 |
| 83-32-9 | Acenaphthene | 10 U | | | |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2495781
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 11/27/89
 Date Analyzed: 12/14/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 8 BJ |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propyl | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 8 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | Nitrobenzene-d5 - SS | 65 |
| 88-74-4 | 2-Nitroaniline | 50 U | | 2-Fluorobiphenyl - SS | 65 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Terphenyl-d14 - SS | 96 |
| 208-96-8 | Acenaphthylene | 10 U | | Phenol-d5 - SS | 36 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | 2-Fluorophenol - SS | 34 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2,4,6-Tribromophenol - SS . . | 30 |
| 83-32-9 | Acenaphthene | 10 U | | | |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 25000B1
 Parent Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/30/89
 Date Analyzed: 12/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 5 BJ |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 B |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 92-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 120-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 98-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 72 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 66 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 100 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 65 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 58 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 59 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form 1

F-594

25

P

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2502081
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/30/89
 Date Analyzed: 12/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 5 B |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 B |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 72 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 66 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS . . . | 100 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 65 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 58 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 59 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 25010B1
 Parent Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/30/89
 Date Analyzed: 12/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 5 B |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 B |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 92-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 105-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 72 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 66 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 100 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 65 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 58 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 59 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2493981
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/22/89
 Date Analyzed: 12/14/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 29 B |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 13 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 20 B |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 65 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 68 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 96 |
| 506-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 78 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 74 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS . . | 68 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

8-597

25

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2505981
 Tent Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 12/04/89
 Date Analyzed: 12/26/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 9 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 36 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 57 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 100 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 65 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 69 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 71 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-598

PS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Sample ID: 25088B1
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 12/06/01
 Date Analyzed: 01/13/90
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| S Number | | ug/L | | CAS Number | | ug/L |
|----------|------------------------------|------|--|------------|------------------------------|------|
| -75-9 | N-Nitrosodimethylamine . . | 10 U | | 100-02-7 | 4-Nitrophenol | 10 U |
| 8-95-2 | Phenol | 10 U | | 132-64-9 | Dibenzofuran | 10 U |
| -53-3 | Aniline | 10 U | | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 1-44-4 | bis(2-Chloroethyl)Ether . | 10 U | | 84-66-2 | Diethylphthalate | 10 U |
| -57-8 | 2-Chlorophenol | 10 U | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 1-73-1 | 1,3-Dichlorobenzene . . . | 10 U | | 86-73-7 | Fluorene | 10 U |
| 6-46-7 | 1,4-Dichlorobenzene . . . | 10 U | | 100-01-6 | 4-Nitroaniline | 50 U |
| 0-51-6 | Benzyl Alcohol | 10 U | | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| -50-1 | 1,2-Dichlorobenzene . . . | 10 U | | 86-30-6 | N-Nitrosodiphenylamine (1) | 8 BJ |
| -48-7 | 2-Methylphenol | 10 U | | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 8-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 6-44-5 | 4-Methylphenol | 10 U | | 118-74-1 | Hexachlorobenzene | 10 U |
| 1-64-7 | N-Nitroso-di-n-propylamine | 10 U | | 87-86-5 | Pentachlorophenol | 50 U |
| -72-1 | Hexachloroethane | 10 U | | 85-01-8 | Phenanthrene | 10 U |
| -95-3 | Nitrobenzene | 10 U | | 120-12-7 | Anthracene | 10 U |
| -59-1 | Isophorone | 10 U | | 84-74-2 | Di-n-Butylphthalate . . . | 6 BJ |
| -75-5 | 2-Nitrophenol | 10 U | | 206-44-0 | Fluoranthene | 10 U |
| 5-67-9 | 2,4-Dimethylphenol | 10 U | | 129-00-0 | Pyrene | 10 U |
| -85-0 | Benzoic Acid | 50 U | | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 1-91-1 | bis(2-Chloroethoxy)Methane | 10 U | | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 0-83-2 | 2,4-Dichlorophenol | 10 U | | 55-55-3 | Benzo(a)anthracene | 10 U |
| 0-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | | 218-01-9 | Chrysene | 10 U |
| -20-3 | Naphthalene | 10 U | | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 6-47-8 | 4-Chloroaniline | 10 U | | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| -68-3 | Hexachlorobutadiene | 10 U | | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| -50-7 | 4-Chloro-3-methylphenol . . | 10 U | | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| -57-6 | 2-Methylnaphthalene | 10 U | | 50-32-8 | Benzo(a)pyrene | 10 U |
| -47-4 | Hexachlorocyclopentadiene | 10 U | | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| -06-2 | 2,4,6-Trichlorophenol . . . | 10 U | | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| -95-4 | 2,4,5-Trichlorophenol . . . | 10 U | | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| -58-7 | 2-Chloronaphthalene | 10 U | | | | |
| -74-4 | 2-Nitroaniline | 50 U | | | Nitrobenzene-d5 - SS . . . | 51 |
| 1-11-3 | Dimethyl Phthalate | 10 U | | | 2-Fluorobiphenyl - SS . . | 55 |
| 3-96-8 | Acenaphthylene | 10 U | | | Terphenyl-d14 - SS | 100 |
| 6-20-2 | 2,6-Dinitrotoluene | 10 U | | | Phenol-d5 - SS | 42 |
| 1-09-2 | 3-Nitroaniline | 50 U | | | 2-Fluorophenol - SS . . . | 32 |
| 1-32-9 | Acenaphthene | 10 U | | | 2,4,6-Tribromophenol - SS | 52 |
| -28-5 | 2,4-Dinitrophenol | 10 U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-599

PS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2511881
 Parent Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 12/11/89
 Date Analyzed: 01/15/90
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 7 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 48 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 52 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS . . . | 84 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 50 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 29 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 41 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-600

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 2515181
 Client Sample ID: SBLKW1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 12/11/89
 Date Analyzed: 01/15/90
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | ug/L | CAS Number | ug/L |
|------------|----------------------------------|------------|---------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . 10 U | 100-02-7 | 4-Nitrophenol 10 U |
| 108-95-2 | Phenol 10 U | 132-64-9 | Dibenzofuran 10 U |
| 62-53-3 | Aniline 10 U | 121-14-2 | 2,4-Dinitrotoluene 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . 10 U | 84-66-2 | Diethylphthalate 10 U |
| 95-57-8 | 2-Chlorophenol 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . 10 U | 86-73-7 | Fluorene 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . 10 U | 100-01-6 | -Nitroaniline 50 U |
| 100-51-6 | Benzyl Alcohol 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) 10 U |
| 95-48-7 | 2-Methylphenol 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 10 U | 101-55-3 | 4-Bromophenyl-phenylether 10 U |
| 106-44-5 | 4-Methylphenol 10 U | 118-74-1 | Hexachlorobenzene 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine 10 U | 87-86-5 | Pentachlorophenol 50 U |
| 67-72-1 | Hexachloroethane 10 U | 85-01-8 | Phenanthrene 10 U |
| 98-95-3 | Nitrobenzene 10 U | 120-12-7 | Anthracene 10 U |
| 78-59-1 | Isophorone 10 U | 84-74-2 | Di-n-Butylphthalate . . . 7 J |
| 88-75-5 | 2-Nitrophenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 105-67-9 | 2,4-Dimethylphenol 10 U | 129-00-0 | Pyrene 10 U |
| 65-85-0 | Benzoic Acid 50 U | 85-68-7 | Butylbenzylphthalate . . . 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . 20 U |
| 120-83-2 | 2,4-Dichlorophenol 10 U | 56-55-3 | Benzo(a)anthracene 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . 10 U | 218-01-9 | Chrysene 10 U |
| 91-20-3 | Naphthalene 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 10 U |
| 106-47-8 | 4-Chloroaniline 10 U | 117-84-0 | Di-n-octylphthalate . . . 10 U |
| 87-58-3 | Hexachlorobutadiene . . . 10 U | 205-99-2 | Benzo(b)fluoranthene . . . 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . 10 U | 207-08-9 | Benzo(k)fluoranthene . . . 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 77-47-4 | Hexachlorocyclopentadiene 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . 10 U | | |
| 98-74-4 | 2-Nitroaniline 50 U | | Nitrobenzene-d5 - SS . . . 48 |
| 131-11-3 | Dimethyl Phthalate 10 U | | 2-Fluorobiphenyl - SS . . 52 |
| 208-96-8 | Acenaphthylene 10 U | | Terphenyl-d14 - SS . . . 84 |
| 606-20-2 | 2,6-Dinitrotoluene 10 U | | Phenol-d5 - SS 50 |
| 99-09-2 | 3-Nitroaniline 50 U | | 2-Fluorophenol - SS . . . 29 |
| 83-32-9 | Acenaphthene 10 U | | 2,4,6-Tribromophenol - SS 41 |
| 51-28-5 | 2,4-Dinitrophenol 10 U | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-601

METHOD BLANKS

Dioxins/Furans (SW8280)

DIOXIN/FURAN VIEW SHEET

(Higher Molecular Wt. Ion used in Calculations)

Analysis: C14 - C18
 LR/HR: HR
 Client Name: CH2M Hill
 CAL Project No.: CALLAB-044027
 Client Sample ID: METHOD BLANK
 Enesco Sample ID: 79472
 Date Sampled: 22 NOV 88
 Date Authorized: 30 NOV 88
 Date Analyzed: 20 DEC 88
 Sample Wt./Vol.: 10.06
 RRF's from: MS881220
 Units: pg/g
 A = Amount added to the sample

CAL Sample Number.: 00001-MB
 Matrix: SOIL
 Date Received: 30 NOV 88
 Date Extracted: 07 DEC 88
 GC Column: DB-5
 Percent Moisture: NA
 Data Prepared by: MMAIER

| FURANS | SCANS | TOTAL AREA | TOTAL AREA | DL
HEIGHT | AREA
RATIO | RRF | AMOUNT
FOUND | DETECTION
LIMIT | PERCENT
RECOVERY |
|--------------------------------------------------------------|----------------------|------------|------------|----------------------|---------------|------------------------------|----------------------|--------------------------|---------------------|
| 13C-2378-TCDF
{total}
{2378} | 12.37 | 10510 | 14140 | 4558
25
25 | 0.74 | 1.50
0.65
0.65 | 2500
ND
ND | (A) 2.1
2.1
2.1 | 57.37 |
| Inda {total}
{12378}
{23478} | ND
ND | | | 114
114
114 | | 2.33
2.33
2.33 | ND
ND
ND | 7.3
7.3
7.3 | |
| Hexa {total}
{123478}
{123678}
{234678}
{123789} | ND
ND
ND
ND | | | 58
58
58
58 | | 1.47
1.47
1.47
1.47 | ND
ND
ND
ND | 4.3
4.3
4.3
4.3 | |
| Hepta {total}
{1234678}
{1234789} | ND
ND | | | 29
29
29 | | 1.16
1.16
1.16 | ND
ND
ND | 3.7
3.7
3.7 | |
| Octa {total} | | | | 105 | | 1.11 | ND | 22 | |

DIOXIN/FURAN REVIEW SHEET

(Higher Molecular Wt. Ion used in Calculations)

Analysis: C14 - C18
 LR/HR: LR
 Client Name: CH2M Hill
 CAL Project No.: CALLAB-044627
 Client Sample ID: METHOD BLANK
 Enesco Sample ID: 79472
 Date Sampled: 22 NOV 88
 Date Authorized: 30 NOV 88
 Date Analyzed: 12 JAN 89
 Sample Wt./Vol.: 10.0G
 RRF's from: F-13 CURVE 6/22/88
 Units: NG/G
 A = Amount added to the sample

CAL Sample Number.: 0001-MB
 Matrix: SOIL
 Date Received: 30 NOV 88
 Date Extracted: 07 DEC 88
 GC Column: DB-5
 Percent Moisture: NA
 Data Prepared by: MBECHTHOLD

| | SCANS | TOTAL AREA | TOTAL AREA | DL
HEIGHT | AREA
RATIO | RRF | AMOUNT
FOUND | DETECTION
LIMIT | PERCENT
RECOVERY |
|---------------|-------|------------|------------|--------------|---------------|------|-----------------|--------------------|---------------------|
| FURANS | | | | | | | | | |
| C-1234-TCDF | 752 | 59629 | 75992 | 19240 | 0.78 | 2.06 | 10 | {A} | 49.29 |
| C-2378-TCDF | | | | 488 | | 0.98 | 2.5 | {A} | |
| tra (total) | | | | | | | ND | 0.0065 | |
| enta (total) | | | | 864 | | 1.99 | ND | 0.020 | |
| Hexa (total) | | | | 272 | | 1.49 | ND | 0.0045 | |
| Hepta (total) | | | | 292 | | 1.65 | ND | 0.0079 | |
| Octa (total) | | | | 240 | | 0.77 | ND | 0.017 | |

DIOXIN/FURAN VIEW SHEET
(Higher Molecular Wt. Ion used in Calculations)

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Analysis: C14 - C18
 LR/HR: HR
 Client Name: CH2M Hill
 CAL Project No.: CALLAB-044761
 Client Sample ID: Method Blank
 Enesco Sample ID: 80753
 Date Sampled:
 Date Authorized: 08 DEC 88
 Date Analyzed: 05 JAN 88
 Sample Wt./Vol.: 10.06
 RRF's from: MS890105
 Units: pg/g
 A = Amount added to the sample</p> | <p>CAL Sample Number: 00001-MB
 Matrix: SOIL
 Date Received: 07 DEC 88
 Date Extracted: 15 DEC 88
 GC Column: DB-5
 Percent Moisture: NA
 Data Prepared by: MMAIER</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | SCANS | TOTAL AREA | TOTAL AREA | DL
HEIGHT | AREA
RATIO | RRF | AMOUNT
FOUND | DETECTION
LIMIT | PERCENT
RECOVERY |
|---------------|-------|------------|------------|--------------|---------------|------|-----------------|--------------------|---------------------|
| FURANS | | | | | | | | | |
| 13C-2378-TCDF | 12.03 | 40770 | 51560 | 16867 | 0.79 | 1.75 | 2500 | (A) 0.42 | 114.11 |
| Tetra (total) | | | | 20 | | 0.71 | ND | 0.42 | |
| | | | | 20 | | 0.71 | ND | | |
| anta (total) | | | | 30 | | 2.44 | ND | 0.58 | |
| | | | | 30 | | 2.44 | ND | 0.58 | |
| | | | | 30 | | 2.44 | ND | 0.58 | |
| Hexa (total) | | | | 20 | | 2.13 | ND | 0.34 | |
| | | | | 20 | | 2.13 | ND | 0.34 | |
| | | | | 20 | | 2.13 | ND | 0.34 | |
| | | | | 20 | | 2.13 | ND | 0.34 | |
| | | | | 20 | | 2.13 | ND | 0.34 | |
| Hepta (total) | | | | 17 | | 1.27 | ND | 0.59 | |
| | | | | 17 | | 1.27 | ND | 0.59 | |
| | | | | 17 | | 1.27 | ND | 0.59 | |
| Octa (total) | | | | 18 | | 1.10 | ND | 1.10 | |

TRIP BLANKS

TRIP BLANKS

Volatile Organic Compounds (SW8240)

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12360006
 Int Sample ID: TRAVEL BLA

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted:
 Date Analyzed: 12/05/88
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 12 B | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-69-4 | Trichlorofluoromethane . . | 12 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 108-88-3 | Toluene | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-42-5 | Styrene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 1330-20-7 | Xylenes (total) | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 541-73-1 | 1,3-Dichlorobenzene | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | 106-46-7 | 1,4-Dichlorobenzene | 5 U |
| 56-23-5 | Carbon Tetrachloride | 5 U | 95-50-1 | 1,2-Dichlorobenzene | 5 U |
| 108-05-4 | Vinyl Acetate | 10 U | 107-02-8 | Acrolein | 100 U |
| 75-27-4 | Bromodichloromethane | 5 U | 107-13-1 | Acrylonitrile | 100 U |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | Toluene-d8 - SS | 95 |
| 75-01-6 | Trichloroethene | 5 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 48-1 | Dibromochloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12346001
Client Sample ID: TRIP BLANK

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted:
Date Analyzed: 12/05/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 4 J | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 96 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12346007
Client Sample ID: TRIP BLANK 2

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: _____
Date Analyzed: 12/06/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-----------------------------|------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 5 U |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 4 J | 591-78-6 | 2-Hexanone | 10 U |
| 57-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 5 U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 5 U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 5 U |
| 57-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 97 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 55-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 8 5 | 1,2-Dichloropropane | 5 U | | | |
| 100-1-01-5 | cis-1,3-Dichloropropene . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 5 U | | | |
| 24-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 5 U | | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRAVEL_BLA

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: V12396 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 12396008

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A1VO001892

Level: (low/med) LOW Date Received: 12/06/88

% Moisture: not dec. _____ Date Analyzed: 12/07/88

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

| | | | |
|------------|----------------------------|----|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 10 | U |
| 67-64-1 | Acetone | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | Chloroform | 2 | J |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 108-05-4 | Vinyl Acetate | 10 | U |
| 75-27-4 | Bromodichloromethane | 5 | U |
| 78-87-5 | 1,2-Dichloropropane | 5 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 124-48-1 | Dibromochloromethane | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 100-42-5 | Styrene | 5 | U |
| 1330-20-7 | Xylenes (total) | 5 | U |

1/87 Rev. P

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21716-1
CLIENT SAMPLE ID : YB 127-132
REPORT DATE : 01-22-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : WATER

DATE SAMPLED : 11-30-88
DATE EXTRACTED :
DATE ANALYSED : 12-14-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 3J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10J acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 94 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| SU trichloroethene | 99 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 99125048-01
CLIENT SAMPLE ID : 21717-1T-BLANK
REPORT DATE : 12-28-1998

CLIENT NAME : CH2M HILL
METHOD : 624
BLANK ID : 89M2V01991
SAMPLE TYPE : WATER

DATE SAMPLED : 11/30/88
DATE RECEIVED : 12/13/88
DATE EXTRACTED :
DATE ANALYSED : 12/14/88

| | | | |
|--------|----------------------------|------|-----------------------------|
| 10 U | chloroethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| ✓ 11 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethane | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethane (total) | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylene (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 5 U | 1,2-dichloropropane | 90 | 1,2-dichloroethane-d4 (SS1) |
| 5 U | cis-1,3-dichloropropene | 101 | toluene-d8 (SS2) |
| 5 U | trichloroethene | 100 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per liter)

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

✓ : indicates an estimated trace value.

ANALYST

[Signature]

APPROVED BY :

R. F. Carney

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21771-1
CLIENT SAMPLE ID : T BLANK
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : WATER

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-15-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SUPPOSATE 2 RECOVERY |
| SU 1,2-dichloropropane | 92 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| SU trichloroethene | 96 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
PERRIS CA 92401 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21774-1
CLIENT SAMPLE ID : T-BLANK
REPORT DATE : 01-23-1989

CLIENT NAME : DEALE AFB CHICK HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : WATER

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-15-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SJ benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| 6 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | S toluene |
| SU 1,2-dichloroethane | SJ chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 98 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 193 toluene-d8 (SS2) |
| S trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC MS VOLATILE ORGANICS ANALYSIS

BAFB-TJ3
LAB REFERENCE NUMBER : 8812SC53-01
CLIENT SAMPLE ID : 21740-1
REPORT DATE : 12-31-1988

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 88M1V03505
SAMPLE TYPE : WATER

DATE SAMPLED : 12/05/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/18/88

| | | | |
|------|--------------------------|------|---------------------------|
| 10 U | chloromethane | 5 U | dibromochloromethane |
| 10 U | bromomethane | 5 U | 1,1,2-trichloroethane |
| 10 U | vinyl chloride | 5 U | benzene |
| 10 U | chloroethane | 5 U | trans-1,3-dichloropropene |
| 2 U | methylene chloride | 10 U | 2-chloroethyl vinyl ether |
| 10 U | acetone | 5 U | bromoform |
| 5 U | carbon disulfide | 10 U | 4-methyl-2-pentanone |
| 5 U | 1,1-dichloroethene | 10 U | 2-hexanone |
| 5 U | 1,1-dichloroethane | 5 U | 1,1,2,2-tetrachloroethane |
| 5 U | 1,2-dichloroethane total | 5 U | tetrachloroethene |
| 5 U | chloroform | 5 U | toluene |
| 5 U | 1,2-dichloroethane | 5 U | chlorobenzene |
| 10 U | 2-butanone | 5 U | ethylbenzene |
| 5 U | 1,1,1-trichloroethane | 5 U | styrene |
| 5 U | carbon tetrachloride | 5 U | xylenes (o+m) |
| 10 U | vinyl acetate | 5 U | xylene (p) |
| 5 U | bromodichloromethane | | |
| 5 U | 1,2-dichloropropane | | |
| 5 U | cis-1,3-dichloropropene | | |
| 5 U | trichloroethene | | |

SURROGATE & RECOVERY
106 1,2-dichloroethane-d4 (SS1)
93 toluene-d8 (SS2)
96 bromofluorobenzene (SS3)

RESULT UNITS : ug/l (micrograms per litre)

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E : indicates an estimated trace value

ANALYST

ALI

APPROVED BY

R. F. Carney

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21775-1
CLIENT SAMPLE ID : T-BLANK
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : WATER

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-20-88

| | |
|-----------------------------|---------------------------------|
| 10U chloromethane | 5U dibromochloromethane |
| 10U bromomethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U methylene chloride | 10U 2-chloroethyl vinyl ether |
| 18 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 5U 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 5U toluene |
| 5U 1,2-dichloroethane | 5U chlorobenzene |
| 6J 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (ota) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 1 RECOVERY |
| 5U 1,2-dichloropropane | 100 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 108 toluene-d8 (SS2) |
| 5U trichloroethene | 106 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEN HILL ENVIRONMENTAL LABORATORY
2218 FAIRROAD AVENUE
REDDING CA 96001 916-743-1773

GC/MS VOLATILE ORGANICS ANALYSIS

LAP REFERENCE NUMBER : 20077-1
CLIENT SAMPLE ID : T-BLANK
REPORT DATE : 01-26-1989

CLIENT NAME : BEALE AFB CHEN HILL/300
SAMPLE RECEIVED : 1-13-89
SAMPLE TYPE : WATER

DATE SAMPLED : 1-12-87
DATE EXTRACTED :
DATE ANALYSED : 1-19-89

| | |
|-----------------------------|--------------------------------|
| 100 chloroethane | 50 dibromochloroethane |
| 100 bromoethane | 50 1,1,2-trichloroethane |
| 100 vinyl chloride | 50 benzene |
| 100 chloroethane | 50 trans-1,3-dichloropropene |
| 7 methylene chloride | 100 2-chloroethyl vinyl ether |
| 50 acetone | 50 bromoform |
| 50 carbon disulfide | 100 4-methyl-2-pentanone |
| 50 1,1-dichloroethene | 100 2-hexanone |
| 50 1,1-dichloroethane | 50 1,1,2,2-tetrachloroethane |
| 50 trans-1,2-dichloroethene | 50 tetrachloroethene |
| 50 chloroform | 50 toluene |
| 50 1,2-dichloroethane | 50 chlorobenzene |
| 100 2-butanone | 50 ethylbenzene |
| 50 1,1,1-trichloroethane | 50 styrene |
| 50 carbon tetrachloride | 50 xylenes (o+m) |
| 100 vinyl acetate | 50 xylene (p) |
| 50 bromodichloroethane | SURROGATE & RECOVERY |
| 50 1,2-dichloropropane | 95 1,2-dichloroethane-d4 (SS1) |
| 50 cis-1,3-dichloropropene | 100 toluene-d9 (SS2) |
| 20 trichloroethene | 102 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEM HILL ENVIRONMENTAL LABORATORY
2218 FAIRROAD AVENUE
REDDING CA 96001 916-247-1735

GC MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 22087-1
CLIENT SAMPLE ID : T-BLANK
REPORT DATE : 01-25-1989

CLIENT NAME : BEALE AFB CHEM HILL/SAC
SAMPLE RECEIVED : 1-16-89
SAMPLE TYPE : WATER

DATE SAMPLED : 1-13-89
DATE EXTRACTED :
DATE ANALYSED : 1-24-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SU benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 15 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 14 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SU toluene |
| SU 1,2-dichloroethane | SU chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+p) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 96 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 99 toluene-d8 (SS2) |
| 3J trichloroethene | 101 bromofluorobenzene (SS3) |

RESULT UNITS : ug/l (micrograms per litre)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 23114-1
Client Sample ID: TRIP BLANK

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 05/16/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|-----------------------------|-------|---|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 5 | U |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether . | 10 | U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 | U |
| 75-09-2 | Methylene Chloride | 5 | U | 591-78-6 | 2-Hexanone | 10 | U |
| 67-64-1 | Acetone | 10 | U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 5 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 5 | U |
| 67-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U | 1330-20-7 | Xylenes (total) | 5 | U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 | U | | | | |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | Toluene-d8 - SS | 89 | |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 92 | |
| 75-27-4 | Bromodichloromethane | 5 | U | | 1,2-Dichloroethane-d4 - SS | 98 | |
| 78-87-5 | 1,2-Dichloropropane | 5 | U | | | | |
| 106-61-5 | cis-1,3-Dichloropropene . . . | 5 | U | | | | |
| 75-00-6 | Trichloroethene | 5 | U | | | | |
| 124-48-1 | Dibromochloromethane | 5 | U | | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U | | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

F-617

Shimadzu Avenue, P O Box 2088
Folsom, CA 95601

RS

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Wet Chemistry

QA/QC REPORT

[illegible]

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates $\text{RPD} = \pm 20\%$ for concentrations > 5 times DL or 1 DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = $\pm 20\%$ of True Value or within EPA range

400

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicates | | | Spike | | | Lab QC Check | | EPA QC Check | |
|----------|---------|--------------|----------|------------|------|------|-------|-------|------|--------------|------|--------------|------|
| | | | | SR | D | RPD | True | SSR | % R | C | % R | C | % R |
| Chloride | 2-24-89 | <1 | 22333-2 | 69.5 | 69.6 | 0.14 | 70 | 137 | 96.4 | 980 | 98.0 | | |
| | 2-24-89 | <1 | 22382-1 | 33.8 | 33.8 | 0.0 | 30 | 63.7 | 99.7 | 992 | 99.2 | | |
| | 2-27-89 | <1 | 22383-2 | 21.4 | 21.4 | 0.0 | 20 | 42.3 | 104 | 1000 | 100 | | |
| | 3-14-89 | <1 | 22421-4 | 14.0 | 14.0 | 0.0 | 14.0 | 28.9 | 107 | 1008 | 101 | | |
| | 3-14-89 | <1 | 22455 | 81.8 | 76.8 | 6.3 | 80 | 157 | 94.0 | 1008 | 101 | | |
| | 3-21-89 | <1.0 | 22505 | 49.0 | 49.0 | 0.0 | 50 | 101 | 104 | 1003 | 100 | | |
| | 3-27-89 | <1 | 22660 | 10.9 | 10.9 | 0.0 | 10.0 | 20.8 | 99.0 | 999.6 | 100 | | |
| | 3-27-89 | <1 | 22674 | 9.90 | 8.91 | 10.5 | 10.0 | 19.8 | 98.9 | 999.6 | 100 | | |
| | 4-6-89 | <1 | 22768 | 50.5 | 51.5 | 2.0 | 50 | 101 | 101 | 52.1 | | 50.3 | 96.5 |
| | 4-14-89 | <1 | 22849 | 10.2 | 10.3 | 1.0 | 100 | 113 | 103 | 1003 | 100 | | |
| | 4-17-89 | <1 | 22915 | 11.4 | 11.5 | 0.9 | 100 | 111.1 | 99.7 | 1014 | 101 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Unit: mg/L

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or within EPA range

rm 004

QA/QC REPORT

unit: mg/liter

1. Method Blank = 1 Detection Limit (DL)

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates APD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or within EPA range

•

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicates | | | Spike | | | Lab QC Check | | EPA QC Check | |
|----------|---------|--------------|----------|------------|-------|------|-------|------|------|--------------|------|--------------|------|
| | | | | SR | D | RPD | True | SSR | % R | True | C | % R | C |
| Fluoride | 3-2-89 | <0.05 | 23352 | 0.23 | 0.25 | 8.3 | 0.20 | 0.47 | 120 | 0.11 | | | 0.10 |
| | 3-2-89 | <0.05 | 23425 | 0.12 | 0.12 | 0.0 | 0.20 | 0.32 | 105 | 0.11 | | | 0.10 |
| | 3-2-89 | <0.05 | 23434 | <0.05 | <0.05 | NC | 0.10 | 0.10 | 100 | 0.40 | 0.40 | 100 | |
| | 3-17-89 | <0.10 | 23423 | 0.15 | 0.17 | 12.5 | 0.15 | 0.32 | 113 | 0.11 | | | 0.13 |
| | 3-17-89 | <0.10 | 23574 | 0.30 | 0.30 | 0.0 | 0.10 | 0.42 | 120 | 0.40 | 0.45 | 112 | |
| | 3-30-89 | <0.10 | 23683 | 0.11 | 0.10 | 9.5 | 0.20 | 0.28 | 85 | 0.11 | | | 0.12 |
| | 3-30-89 | <0.10 | 23735 | <0.10 | <0.10 | NC | 0.20 | 0.15 | 77.3 | 0.11 | | | 0.12 |
| | 3-30-89 | <0.10 | 23734 | 0.22 | 0.23 | 4.4 | 0.20 | 0.43 | 105 | 0.40 | 0.37 | 93.0 | |
| | 4-12-89 | <0.10 | 23817 | <0.1 | <0.1 | NC | 0.20 | 0.24 | 120 | 0.40 | 0.41 | 103 | |
| | 4-12-89 | <0.10 | 23890 | 0.26 | 0.27 | 3.8 | 0.10 | 0.36 | 100 | 0.40 | 0.41 | 103 | |
| | 4-12-89 | <0.10 | 23905 | 0.24 | 0.25 | 4.1 | 0.10 | 0.34 | 96.6 | 0.40 | 0.40 | 100 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Unit: mg/Liter

QA Criteria:

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or within EPA range

[illegible]

units: mg/liter

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates APD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or Within EPR range

ナ
ツ

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicates | | | Spike | | | Lab QC Check | | EPA QC Check | |
|---------|---------|--------------|----------|------------|------|------|-------|------|------|--------------|------|--------------|-----|
| | | | | SR | D | RPD | True | SSR | % R | % C | % R | C | % R |
| Sulfate | 2-21-89 | <1.0 | 223852 | 29.4 | 29.4 | 0.0 | 22.2 | 52.5 | 104 | 20.7 | 104 | | |
| | 3-01-89 | <1.0 | 22405 | 48.8 | 48.8 | 0.0 | 50 | 104 | 110 | 20.7 | 103 | | |
| | 3-15-89 | <1.0 | 22415 | 5.8 | 5.4 | 7.1 | 5.0 | 10.9 | 102 | 20.8 | 104 | | |
| | 3-15-89 | <1.0 | 22422 | 4.4 | 4.5 | 2.2 | 10.0 | 14.6 | 102 | 20.8 | 104 | | |
| | 3-28-89 | <1.0 | 22622 | 30.5 | 28.6 | 6.4 | 40 | 71.3 | 102 | 21.5 | 108 | | |
| | 3-28-89 | <1.0 | 22623 | <1.0 | <1.0 | NC | 5.0 | 4.5 | 89.6 | 21.3 | 106 | | |
| | 4-03-89 | <1.0 | 22623 | 12.9 | 13.1 | 1.5 | 12.0 | 24.4 | 95.8 | 19.3 | 96.3 | | |
| | 4-10-89 | <1.0 | 22761 | 15.6 | 15.3 | 1.9 | 15.0 | 31.6 | 107 | 19.8 | 99.0 | | |
| | 4-10-89 | <1.0 | 22772-3 | 13.8 | 13.6 | 1.4 | 14.0 | 28.4 | 105 | 19.8 | 99.0 | | |
| | 4-10-89 | <1.0 | 22817-5 | 7.5 | 6.4 | 15.8 | 7.0 | 13.6 | 87.1 | 19.1 | 95.7 | | |
| | 4-17-89 | <1.0 | 22870 | 15.2 | 14.5 | 4.7 | 15.0 | 31.2 | 107 | 19.0 | 94.9 | | |
| | 4-18-89 | <1.0 | 22906-6 | 8.7 | 8.2 | 5.9 | 8.0 | 17.2 | 106 | 19.5 | 97.5 | | |
| | 4-18-89 | <1.0 | 22914 | 3.8 | 3.7 | 2.7 | 4.0 | 7.7 | 98.5 | 19.5 | 97.5 | | |

units: mg/liter

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = $\pm 20\%$ for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = $\pm 20\%$ of True Value or within EPA range

QA/QC REPORT

F-624

QA Criteria

- was**

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicates | | | Spike | | | Lab QC Check | | EPA QC Check | |
|---------|---------|--------------|----------|------------|-------|------|-------|-------|------|--------------|------|--------------|------|
| | | | | SR | D | RPD | True | SSR | X R | C | % R | C | % R |
| N03/N02 | 3-03-89 | <0.03 | 22333-2 | 2.25 | 2.22 | 1.3 | 2.0 | 4.12 | 93.5 | 7.66 | | 7.07 | 92.2 |
| | 3-03-89 | <0.03 | 22375-3 | 5.29 | 5.15 | 2.7 | 2.0 | 7.19 | 95.0 | 7.66 | | 7.07 | 92.2 |
| | 3-04-89 | 0.03 | 22398-2 | 4.50 | 4.46 | 0.89 | 2.5 | 7.12 | 105 | 7.66 | | 7.53 | 98.3 |
| | 3-08-89 | 0.03 | 22405 | 5.72 | 5.45 | 4.8 | 2.5 | 8.29 | 103 | 7.66 | | 7.55 | 98.6 |
| | 3-16-89 | <0.03 | 22455-1 | 2.82 | 2.40 | 16.1 | 3.0 | 5.53 | 90.3 | 7.66 | | 7.19 | 93.8 |
| | 3-23-89 | <0.03 | 22462-2 | 3.72 | 3.30 | 12.0 | 3.0 | 6.52 | 93.3 | 7.66 | | 7.27 | 95.0 |
| | 3-31-89 | <0.03 | 22674 | 2.22 | 2.23 | 0.50 | 0.50 | 2.68 | 92.0 | 7.66 | | 7.58 | 98.9 |
| | 4-05-89 | <0.03 | 22794 | <0.03 | <0.03 | NC | 0.40 | 0.43 | 108 | 7.66 | | 8.24 | 108 |
| | 4-5-89 | <0.03 | 22792-1 | 1.12 | 1.08 | 3.6 | 1.0 | 2.34 | 122 | 7.66 | | 8.34 | 109 |
| | 4-05-89 | <0.03 | 22817-5 | 5.36 | 5.14 | 4.2 | 10.0 | 16.88 | 115 | 7.66 | | 8.34 | 109 |
| | 4-13-89 | <0.03 | 22870 | 1.44 | 1.48 | 2.7 | 1.0 | 2.67 | 123 | 0.80 | 0.78 | 97.2 | |
| | 4-13-89 | <0.03 | 22891-2 | 4.46 | 4.59 | 2.9 | 5.0 | 10.43 | 119 | 0.80 | 0.78 | 97.2 | |
| | 4-13-89 | <0.03 | 22906-5 | 1.28 | 1.24 | 3.2 | 1.0 | 2.44 | 116 | 0.80 | 0.77 | 95.0 | |

E-625

unit: mg/liter

QA Criteria:

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations $>$ 5 times DL for concentrations \leq 5 times DL
3. Spike X Recovery = 75-125% for sample concentrations $<$ 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or within EPA range

Form 004

QA/QC REPORT

[illegible]

unit, mg/liter

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates $\text{RPD} = \pm 20\%$ for concentrations > 5 times DL or ± 1 DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = $\pm 20\%$ of True Value or within EPA range

For

[illegible]

weight: mg/liter

61-15349

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates $\text{RPD} = \pm 20\%$ for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations (4 times the spike concentrations)
4. QC Check = $\pm 20\%$ of True Value or Within EPA range

400

QA/QC IN PORT

F-628

QA Criterio

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or within EPA range

103

[illegible]

unit: mg/Liter

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = \pm 20% of True Value or Within EPA range

五
十

[illegible]

unit: mg/Liter

QA Criterio

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates APD = $\pm 20\%$ for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = $\pm 20\%$ of True Value or within EPA range

Form 00

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicates | | | Spike | | | Lab QC Check | | EPA QC Check | |
|------|---------|--------------|----------|------------|------|------|-------|-----|-----|--------------|-----|--------------|-------|
| | | | | SR | D | RPD | True | SSR | % R | C | % R | C | % R |
| TD5 | 2-16-89 | — | 223452 | 335 | 331 | 0.3 | 429 | | | | | 380 | 88.6 |
| | 2-20-89 | — | *223443 | 1560 | 1580 | 1.3 | 429 | | | | | 382 | 89.0 |
| | 2-22-89 | — | 224051 | 292 | 285 | 2.4 | 429 | | | | | 403 | 93.9 |
| | 2-27-89 | — | 22445 | 162 | 159 | 1.9 | 429 | | | | | 396 | 72.3 |
| | 3-04-89 | — | 22506 | 280 | 290 | 3.5 | 429 | | | | | 430 | 100.2 |
| | 3-03-89 | — | 22505 | 353 | 344 | 2.6 | 429 | | | | | 389 | 90.7 |
| | 3-07-89 | — | *223782 | 440 | 446 | 1.4 | 429 | | | | | 408 | 95.1 |
| | 3-13-89 | — | 22622 | 216 | 212 | 1.9 | 429 | | | | | 370 | 86.3 |
| | 3-14-89 | — | *22623 | 1090 | 1090 | 0.0 | 429 | | | | | 362 | 84.4 |
| | 3-16-89 | — | *22626 | 68 | 60 | 12.5 | 429 | | | | | 342 | 79.7 |
| | 3-20-89 | — | 22613 | 216 | 229 | 5.8 | 414 | | | | | 408 | 98.6 |
| | 3-24-89 | — | 227394 | 194 | 198 | 2.0 | 414 | | | | | 388 | 90.4 |
| | 3-24-89 | — | 22782-3 | 265 | 263 | 0.8 | 429 | | | | | 402 | 93.7 |

UNIT: mg/LITER * INDICATES NON-BEING REFERENCE NUMBERS.

QA Criteria

1. Method Blank : \pm Detection Limit (DL)
2. Duplicates RPD : \pm 20% for concentrations > 5 times DL or \pm DL for concentrations ≤ 5 times DL
3. Spike % Recovery : 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check : \pm 20% of True Value or within EPA range

rm 004

QA/QC REPORT

UNIT: mg/LITER

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates APD = $\pm 20\%$ for concentrations > 5 times DL or ± 1 DL for concentrations ≤ 5 times DL
3. Spike x Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
4. QC Check = $\pm 20\%$ of True Value or Within EPA range

400.

QA/QC REPORT

| Test | Date | Method Blank | Ref. No. | Duplicatos | | | Spike | | | Lab QC Check | | EPA QC Check | |
|------|---------|--------------|----------|------------|-----|------|-------|-----|-----|--------------|-----|--------------|------|
| | | | | SR | D | RPD | True | SSR | % R | C | % R | C | % R |
| TDS | 5-3-89 | | 23306 | 160 | 176 | 9.5 | 286 | | | | | 280 | 97.9 |
| | 6-1-89 | | 233254 | 244 | 236 | 3.3 | 286 | | | | | 258 | 90.2 |
| | 6-6-89 | | 233724 | 322 | 376 | 15.5 | 286 | | | | | 272 | 95.1 |
| | 6-8-89 | | 233755 | 366 | 388 | 5.8 | 286 | | | | | 302 | 106. |
| | 6-9-89 | | 233974 | 514 | 498 | 3.2 | 429 | | | | | 374 | 87.2 |
| | 6-9-89 | | 23417 | 237 | 232 | 2.1 | 429 | | | | | 374 | 87.2 |
| | 6-14-89 | | 234543 | 33 | 27 | 20.0 | 429 | | | | | 398 | 92.8 |
| | 6-19-89 | | 23486-1 | 277 | 285 | 2.9 | 429 | | | | | 348 | 81.1 |
| | 6-20-89 | | 23501 | 263 | 300 | 13.1 | 429 | | | | | 380 | 88.6 |
| | 6-21-89 | | 235244 | 315 | 290 | 8.3 | 429 | | | | | 333 | 77.6 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

1633

units mg/liter

QA Criteria

1. Method Blank = \pm Detection Limit (DL)
2. Duplicates RPD = \pm 20% for concentrations > 5 times DL or \pm DL for concentrations \leq 5 times DL
3. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations
1. QC Check = \pm 20% of True Value or within EPA range

RM

QA/QC SUMMARY

DP#: BAFB3

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE | | METHOD | DUPLICATES | | | SPIKE | | | LCS | | | LCS SOURCE |
|----------|---------------|-------|------|-----------|----|--------|------------|------|------|-------|------|------|------|--------|------|------------|
| | | | | NUMBER | DL | | SR | D | KPD | TV | SSR | X R | TV | RESULT | X R | |
| TDS | 08-31-89 | mg/l | 3 | 24158-3 | | | 263 | 258 | 1.9 | | | | 508 | 492 | 96.8 | LAB |
| TDS | 09-01-89 | mg/l | 3 | 24185-8 | | | 251 | 240 | 4.5 | | | | 508 | 522 | 103 | LAB |
| TDS | 09-01-89 | mg/l | 3 | 24191-3 | | | 336 | 335 | 0.3 | | | | 508 | 506 | 99.6 | LAB |
| TDS | 09-06-89 | mg/l | 3 | 24202-6 | | | 203 | 1999 | 2.0 | | | | 508 | 499 | 98.2 | LAB |
| TDS | 09-13-89 | mg/l | 3 | 24242-7 | | | 254 | 248 | 2.4 | | | | 508 | 560 | 110 | LAB |
| TDS | 09-14-89 | mg/l | 3 | 24246-3 | | | 228 | 225 | 1.3 | | | | | | | |
| TDS | 09-14-89 | mg/l | 3 | 24265-3 | | | 244 | 250 | 2.4 | | | | 508 | 484 | 95.3 | LAB |
| TDS | 09-18-89 | mg/l | 3 | 24272-3 | | | 247 | 244 | 1.2 | | | | 575 | 569 | 99.0 | LAB |
| TDS | 09-19-89 | mg/l | 3 | 24304-3 | | | 284 | 283 | 0.4 | | | | 575 | 567 | 98.6 | LAB |
| TDS | 09-20-89 | mg/l | 3 | 24337-3 | | | 347 | 363 | 4.5 | | | | 575 | 5882 | 102 | LAB |
| TDS | 09-25-89 | mg/l | 3 | 24387-4 | | | 385 | 368 | 4.5 | | | | 575 | 572 | 99.5 | LAB |
| TDS | 09-27-89 | mg/l | 3 | 24406-4 | | | 359 | 364 | 1.4 | | | | | | | |
| TDS | 10-02-89 | mg/l | 3 | 24451-1 | | | 460 | 457 | 0.7 | | | | 575 | 563 | 97.9 | LAB |
| Chloride | 09-15-89 | mg/l | 1 | 24185-8 | | <1.0 | 16.8 | 17.5 | 4.1 | 20.0 | 38.1 | 106 | 1000 | 1008 | 101 | LAB |
| Chloride | 09-20-89 | mg/l | 1 | 24202-6 | | <1.0 | 10.8 | 11.2 | 3.6 | 20.0 | 30.5 | 98.5 | 1000 | 976 | 97.6 | LAB |
| Chloride | 09-22-89 | mg/l | 1 | 24246-3 | | <1.0 | 24.8 | 25.2 | 1.6 | 20.0 | 44.8 | 100 | 1000 | 982 | 98.2 | LAB |
| Chloride | 09-22-89 | mg/l | 1 | 24265-3 | | <1.0 | 43.7 | 43.7 | 0.0 | 20.0 | 64.1 | 102 | 1000 | 983 | 98.3 | LAB |
| Chloride | 10-10-89 | mg/l | 1 | 24451-1 | | <1.0 | 45.7 | 45.6 | 0.2 | 40.0 | 86.4 | 102 | 1000 | 999 | 99.9 | LAB |
| Fluoride | 09-15-89 | mg/l | 0.05 | 24202-6 | | <0.05 | 0.27 | 0.29 | 7.1 | 0.20 | 0.51 | 120 | 0.42 | 0.44 | 105 | EPA-CI |
| Fluoride | 09-15-89 | mg/l | 0.05 | 24185-8 | | <0.05 | 0.24 | 0.27 | 11.8 | 0.20 | 0.45 | 105 | 0.40 | 0.43 | 108 | LAB |
| Fluoride | 09-20-89 | mg/l | 0.05 | 24242-6 | | <0.05 | 0.18 | 0.19 | 5.4 | 0.20 | 0.34 | 80.0 | 0.42 | 0.36 | 85.7 | EPA-CI |
| Fluoride | 09-20-89 | mg/l | 0.05 | 24337-1 | | <0.05 | 0.14 | 0.13 | 7.4 | 0.20 | 0.29 | 75.0 | 0.42 | 0.38 | 90.5 | EPA-CI |
| Fluoride | 10-13-89 | mg/l | 0.05 | 24451-1 | | <0.05 | 0.23 | 0.23 | 0.0 | 0.10 | 0.33 | 100 | 0.40 | 0.41 | 102 | LAB |

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

X R = Percent Recovery

LCS = Lab Control Sample

MC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

FORM 004

QA/QC SUMMARY

DP#: BAFB3

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE | | METHOD | DUPLICATES | | | SPIKE | | | LCS | | | LCS SOURCE |
|-----------------------|---------------|-------|------|------------|-------|--------|------------|-------|-----|-------|-------|--------|-------|-------|------|------------|
| | | | | SR | D | | RPD | TV | SSR | X R | TV | RESULT | X R | | | |
| Sulfate | 09-16-89 | mg/l | 1 | 24185-3 | <1 | | <1 | | MC | 5.00 | 5.7 | 114 | 20.0 | 21.9 | 110 | LAB |
| Sulfate | 09-16-89 | mg/l | 1 | 24202-4 | <1 | | <1 | | MC | 5.00 | 5.2 | 104 | 20.0 | 22.2 | 111 | LAB |
| Sulfate | 09-21-89 | mg/l | 1 | 24230-16 * | <1 | | 11.7 | 11.7 | 0.0 | 10.0 | 22.8 | 111 | 20.0 | 21.5 | 108 | LAB |
| Sulfate | 09-21-89 | mg/l | 1 | 24242-7 | <1 | | 6.0 | 6.0 | 0.0 | 10.0 | 15.4 | 94.0 | 20.0 | 21.2 | 106 | LAB |
| Sulfate | 10-11-89 | mg/l | 1 | 24451-1 | <1 | | 7.9 | 7.7 | 2.6 | 5.00 | 12.3 | 87.6 | 20.0 | 19.8 | 99.0 | LAB |
| Nitrate-Nitrite @ M03 | 09-18-89 | mg/l | 0.13 | 24202-6 | <0.13 | | 10.14 | 9.79 | 3.6 | 11.1 | 23.0 | 116 | 8.86 | 10.1 | 114 | EPA-CI |
| Nitrate-Nitrite @ M03 | 09-27-89 | mg/l | 0.13 | 24242-7 | <0.13 | | 11.4 | 11.7 | 2.6 | 4.4 | 16.6 | 117 | 8.86 | 8.82 | 99.5 | EPA-CI |
| Nitrate-Nitrite @ M03 | 10-09-89 | mg/l | 0.13 | 24451-1 | <0.13 | | 0.22 | 0.22 | 0.0 | 0.89 | 1.20 | 110 | 3.54 | 5.90 | 110 | LAB |
| COO | 09-08-89 | mg/l | 7.0 | 24158-3 | <7 | | <7 | | MC | 100 | 107 | 107 | 75.0 | 76.5 | 102 | LAB |
| COO | 09-11-89 | mg/l | 7.0 | 24087-2 * | <7 | | 19.0 | 20.4 | 7.0 | 100 | 121 | 102 | 75.0 | 75.6 | 101 | LAB |
| COO | 09-28-89 | mg/l | 7.0 | 24265-1 | <7 | | <7 | | MC | 100 | 108 | 108 | 75.0 | 75.9 | 101 | LAB |
| Total Cyanide | 09-26-89 | mg/l | 0.01 | 24304-1 | <0.01 | | <0.01 | <0.01 | MC | 0.100 | 0.111 | 111 | 0.094 | 0.108 | 115 | EPA-LV |

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

FORM 004

DL = Detection Limit
 SR = Sample Result
 D = Duplicate
 RPD = Relative Percent Difference
 TV = True Value
 SSR = Spiked Sample Result
 X R = Percent Recovery
 LCS = Lab Control Sample
 MC = Not Calculable



QA/QC SUMMARY

DP#: BAF248

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE NUMBER | METHOD | DUPLICATES | | | SPIAL | | | LCS | | | LCS SOURCE |
|------------------------|---------------|-------|------|------------------|--------|------------|------|-----|-------|------|------|------|--------|------|------------|
| | | | | | | SR | D | RPD | TV | SSR | % R | TV | RESULT | % R | |
| Chem. Oxygen Demand | 11-17-89 | mg/L | 7.0 | 24887-4 | <7.0 | <7.0 | <7.0 | NC | | | | 75 | 80.7 | 108% | LAB |
| Chem. Oxygen Demand | 11-17-89 | mg/L | 7.0 | 24887-4 | <7.0 | <14.0 | | | 100 | 94.2 | 94.2 | | | | |
| Chem. Oxygen Demand | 11-27-89 | mg/L | 7.0 | 24898-2 | <7.0 | <7.0 | <7.0 | NC | | | | 75 | 85.1 | 113 | LAB |
| Chem. Oxygen Demand | 11-27-89 | mg/L | 7.0 | 24898-2 | <7.0 | <14.0 | | | 100 | 95.6 | 95.6 | | | | |
| Total Dissolved Solids | 11-15-89 | mg/L | 3.0 | 24868-2 | ---- | 369 | 372 | 4.5 | | | | 575 | 549 | 95.5 | LAB |
| Total Dissolved Solids | 11-20-89 | mg/L | 3.0 | 24887-3 | ---- | 241 | 233 | 3.3 | | | | 575 | 497 | 86.4 | LAB |
| Total Dissolved Solids | 11-20-89 | mg/L | 3.0 | 24898-3 | ---- | 316 | 307 | 2.9 | | | | 575 | 560 | 97.4 | LAB |
| Chloride | 11-29-89 | mg/L | 1.0 | 24898-3 | <1.0 | 34.2 | 34.8 | 1.7 | 100 | 140 | | 1000 | 1076 | 108 | LAB |
| Chloride | 11-29-89 | mg/L | 1.0 | | <1.0 | | | | | | | 1000 | 1075 | 108 | LAB |
| Fluoride | 12-01-89 | mg/L | 0.10 | 24868-2 | <0.10 | 0.15 | 0.15 | 0.0 | 0.10 | 0.25 | 100 | 0.40 | 0.42 | 105 | LAB |
| Sulfate | 11-27-89 | mg/L | 1.0 | 24898-1 | <1.0 | 14.8 | 14.8 | 0.0 | 5.0 | 19.1 | 86.0 | 20.0 | 18.6 | 90.0 | LAB |
| Nitrate/Nitrite | 11-28-89 | mg/L | 0.13 | 24898-3 | <0.13 | 9.13 | 8.77 | 4.0 | 11.1 | 21.3 | 110 | 0.80 | 0.84 | 105 | LAB |
| Alkalinity | 11-15-89 | mg/L | 1 | 24868-2 | <1 | 115 | 114 | 0.7 | | | | 0.05 | 0.51 | 102 | LAB |

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.
- DL = Detection Limit
SR = Sample Result
D = Duplicate
RPD = Relative Percent Difference
TV = True Value
SSR = Spiked Sample Result
% R = Percent Recovery
LCS = Lab Control Sample
NC = Not Calculable

Comments: • LCS for NITRATE/NITRITE listed here is as N, not NO3.

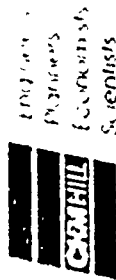
• The units for LCS is normality for the ALKALINITY test.

CH2M HILL

Rodding Environmental Laboratory

6000 College View Road, Rocking Creek, Ohio 43081

ST-248-89



QA/QC SUMMARY

DP# BAF249

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE | | DUPLICATES | | | | SPILF | | | | LCS | | LCS SOURCE |
|------------------------|---------------|-------|------|-----------|--------|------------|------|-----|------|-------|------|-----|---------|--------|------|------------|
| | | | | NUMBER | METHOD | SR | D | RPO | % R | TV | SSR | % R | TV | RESULT | % R | |
| Chemical Oxygen Demand | 11-27-89 | mg/L | 7.0 | 24898-2 | <7.0 | <7.0 | <7.0 | NC | | | | | 75 | 85.1 | 113 | LAB |
| Chemical Oxygen Demand | 11-27-89 | mg/L | 7.0 | 24898-2 | <7.0 | <14.0 | | | 95.6 | 100 | | | | | | |
| Chemical Oxygen Demand | 12-04-89 | mg/L | 7.0 | 24954-1 | <7.0 | <7.0 | <7.0 | NC | | | | | 75 | 77.0 | 103 | LAB |
| Chemical Oxygen Demand | 12-04-89 | mg/L | 7.0 | 24954-1 | <7.0 | <14.0 | | | 93.7 | 100 | | | | | | |
| Total Dissolved Solids | 11-21-89 | mg/L | 3 | 24934 | ---- | 263 | 252 | 4.3 | | | | | 575 | 577 | 100 | LAB |
| Total Dissolved Solids | 11-22-89 | mg/L | 3 | 24939-3 | ---- | 278 | 266 | 4.4 | | | | | 575 | 540 | 93.9 | LAB |
| Total Dissolved Solids | 11-27-89 | mg/L | 3 | 24957-4 | ---- | 252 | 251 | 0.4 | | | | | 575 | 585 | 102 | LAB |
| Chloride | 12-08-89 | mg/L | 1.0 | 24939-1 | <1.0 | 9.6 | 8.8 | 8.7 | 99.5 | 20.0 | 29.5 | | 1000 | 996 | 99.6 | LAB |
| Chloride | 12-08-89 | mg/L | 1.0 | 24939-3 | <1.0 | 37.4 | 30.5 | 2.9 | 94.5 | 20.0 | 56.3 | | 1000 | 991 | 99.1 | LAB |
| Chloride | 12-08-89 | mg/L | 1.0 | 24957-4 | <1.0 | 12.2 | 11.5 | 5.9 | 100 | 20.0 | 32.3 | | 1000 | 989 | 98.9 | LAB |
| Fluoride | 12-08-89 | mg/L | 0.10 | 24939-3 | <0.10 | 0.16 | 0.15 | 6.5 | 100 | 0.20 | 0.36 | | 0.40 | 0.42 | 105 | LAB |
| Fluoride | 12-08-89 | mg/L | 0.10 | 24934 | <0.10 | 0.55 | 0.55 | 0.0 | 98.0 | 2.0 | 2.51 | | 6.0 | 6.16 | 103 | LAB |
| Sulfate | 12-08-89 | mg/L | 1.0 | 24957-4 | <1.0 | 11.9 | 11.9 | 0.0 | 82.0 | 5.0 | 16.0 | | 2.0 | 18.0 | 90.8 | LAB |
| Nitrate/Nitrite | 2403 12-07-89 | mg/L | 0.13 | 24939-3 | <0.13 | 3.32 | 3.19 | 4.1 | 120 | 0.89 | 4.39 | | 0.80 | 0.86 | 108 | LAB |
| Nitrate/Nitrite | 2403 12-07-89 | mg/L | 0.13 | 24957-4 | <0.13 | 4.08 | 4.47 | 9.3 | 106 | 0.86 | 13.5 | | 0.80 | 0.86 | 108 | LAB |
| Total Alkalinity | 2403 11-22-89 | mg/L | 1 | 24954-1 | <1 | 132 | 133 | 0.8 | | | | | 0.05*** | 0.05 | 100 | LAB |

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.

* This Beale Sample is reported in data package BAF248 and is used here for QC purposes only.

** The LCS for Nitrate/Nitrite is reported 24H.

*** The LCS for Alkalinity is reported in units of Normality.

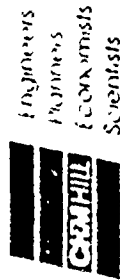
DL = Detection Limit
SR = Sample Result
D = Duplicate
RPD = Relative Percent Difference
TV = True Value
SSR = Spiked Sample Result
% R = Percent Recovery
LCS = Lab Control Sample
NC = Not Calculable

FORM 004
CH2M HILL

Redding Environmental Laboratory

2000 College Blvd Redding, California 96003

10/22/89



DP#: BAF250

QA/QC SUMMARY

| TEST | DATE | ANALYZED | UNITS | DL | REFERENCE | | METHOD | | DUPLICATES | | | SPIKE | | | LCS | | | LCS | SOURCE |
|------------------------|----------|----------|-------|------|-----------|-------|--------|------|------------|------|------|-------|----|--------|-----|---------|--------|------|--------|
| | | | | | HUMBER | BLANK | SR | D | RPD | IV | SSR | X R | IV | RESULT | X R | IV | RESULT | | |
| COO | 12-04-89 | | mg/L | 7.0 | 24954-1 * | <7.0 | <7.0 | <7.0 | NC | | | | | | | 75 | 77 | 103 | LAB |
| COO | 12-04-89 | | mg/L | 7.0 | 24954-1 * | <7.0 | <14.0 | | | 100 | 93.7 | 93.7 | | | | | | | |
| COO | 12-13-89 | | mg/L | 7.0 | 25118-2 | <7.0 | 77.9 | 83.3 | 6.7 | | | | | | | 75 | 78.9 | 105 | LAB |
| COO | 12-13-89 | | mg/L | 7.0 | 25118-2 | <7.0 | 80.4 | | | 100 | 100 | 91.6 | | | | | | | |
| Total Dissolved Solids | 12-04-89 | | mg/L | 3 | 25010-2 | --- | 259 | 254 | 1.9 | | | | | | | 575 | 558 | 97.0 | LAB |
| Total Dissolved Solids | 12-06-89 | | mg/L | 3 | 25059-4 | --- | 245 | 250 | 2.0 | | | | | | | 575 | 573 | 99.7 | LAB |
| Total Dissolved Solids | 12-11-89 | | mg/L | 3 | 25080-3 | --- | 12 | 12 | 0.0 | | | | | | | 575 | 464 | 80.7 | LAB |
| Chloride | 12-12-89 | | mg/L | 1.0 | 25118-2 | <1.0 | 24.8 | 27.9 | 11.8 | 100 | 126 | 101 | | | | 1000 | 1020 | 102 | LAB |
| Fluoride | 12-12-89 | | mg/L | 0.10 | 25118-2 | <0.10 | 0.28 | 0.28 | 0.0 | 0.20 | 0.49 | 105 | | | | 0.40 | 0.42 | 105 | LAB |
| Sulfate | 12-14-89 | | mg/L | 1.0 | 25118-2 | <1.0 | 320 | 315 | 1.6 | 100 | 428 | 108 | | | | 20.0 | 19.1 | 95.5 | LAB |
| Nitrate/Nitrite 2M03 | 12-15-89 | | mg/L | 0.13 | 25020-5 | <0.13 | 23.1 | 23.1 | 0.0 | 22.2 | 48.3 | 114 | | | | 0.80 ** | 0.87 | 109 | LAB |
| Nitrate/Nitrite 2M03 | 12-15-89 | | mg/L | 0.13 | 25059-4 | <0.13 | 18.1 | 18.2 | 0.5 | 22.2 | 43.5 | 115 | | | | 0.80 ** | 0.89 | 111 | LAB |
| Nitrate/Nitrite 2M03 | 12-15-89 | | mg/L | 0.13 | 25118-2 | <0.13 | 6.20 | 6.11 | 1.4 | 8.86 | 15.8 | 108 | | | | 0.80 ** | 0.86 | 106 | LAB |
| Total Cyanide | 12-11-89 | | ug/L | 10 | 25010-1 | <10 | <10 | <10 | NC | 100 | 103 | 103 | | | | 94 | 101 | 107 | EPA |
| Total Cyanide | 12-12-89 | | ug/L | 10 | 25059-2 | <10 | <10 | <10 | NC | 100 | 87.6 | 87.6 | | | | 94 | 103 | 110 | EPA |
| Total Cyanide | 12-12-89 | | ug/L | 10 | 25059-3 | <10 | <10 | <10 | NC | 100 | 87.0 | 87.0 | | | | 94 | 101 | 107 | EPA |

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.

* This Beale sample is reported in Data Package #BAF249 and is listed here for QC purposes only.
 ** The LCS for Nitrate/Nitrite is reported as NC.

FORM 004

CIENTECH

Rocking Environmental Laboratory

5090 Catalina Road Redding California 96003

916 244 5227



DP#: 0AF251

DATE: 12-11-89

| TEST | DATE | ANALYZED | UNITS | DL | REFERENCE NUMBER | METHOD | SR | D | RPD | TV | SSR | % R | TV | RESULT | % R | LCS | SOURCE |
|------------------------|----------|----------|-------|------|------------------|--------|------|------|------|------|------|------|------|--------|------|-----|--------|
| Total Dissolved Solids | 12-11-89 | | mg/L | 3 | 25151-5 | ... | 219 | 242 | 10.0 | | | | 575 | 532 | 92.5 | LAB | |
| Chloride | 12-19-89 | | mg/L | 1.0 | 25151-5 | <1.0 | 47.2 | 48.0 | 1.7 | 20 | 68.2 | 105 | 1000 | 1040 | 104 | LAB | |
| Fluoride | 12-20-89 | | mg/L | 0.10 | 25151-5 | <0.10 | 0.40 | 0.40 | 0.0 | 0.10 | 0.49 | 90.0 | 0.40 | 0.42 | 105 | LAB | |
| Sulfate | 12-22-89 | | mg/L | 1.0 | 25151-5 | <1.0 | 5.2 | 5.2 | 0.0 | 5.0 | 9.8 | 92.0 | 20.0 | 19.8 | 99.0 | LAB | |
| Nitrate/Nitrite | 12-21-89 | 2403 | mg/L | 0.13 | 25151-5 | <0.13 | 0.22 | 0.27 | 18.2 | 1.77 | 2.30 | 118 | 0.80 | 0.81 | 101 | LAB | |

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

* The LCS for Nitrate/Nitrite is reported as 24.

FORM 004

01/24/91

Revised for use in the EPA study

1990 Campbell Road, Rocking, California 94603

01/24/91

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

TFH-Diesel (CA Method)





MATRIX SPIKE RESULTS

Laboratory No.: 21582-415

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 1-23-88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-----------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH Diesel wet | 100 | 2100 | 2700 | 3324 | 20.7 | 912 * |
| TFH Diesel Dry Wt.
Basis | 100 | 2600 | 3300 | 4064 | 20.7 | 1082 * |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

* - Spiking solution was diluted out
of samples in 1 to 100 dilutions. BB

F-611

RR



MATRIX SPIKE RESULTS

LABORATORY NO.: 21621-21M5

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 11-30-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH Diesel | 100 | 19 | 136 | 138 | 1.46 | 118 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

Analyst B.B.

F-641



MATRIX SPIKE RESULTS

LABORATORY NO.: 21629-11MS

ANALYSIS: TFH Diesel

MATRIX: soil

DATE TESTED: 12-14-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 55 | 122 | 127 | 4.0 | 70 |
| | 100 | 72 | 158 | 165 | 4.3 | 90 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

Analyst BB

F-642



MATRIX SPIKE RESULTS

LABORATORY NO.: 2165-2MS

ANALYSIS: TFH Diesel

MATRIX: SO₂/

DATE TESTED: 12-15-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 410 | 694 | 462 | 40.1 | 168* |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS: *- Results are reported on a dry weight basis.
High spike recovery and RPD is due to high
hydrocarbon matrix in sample and 1:10 dilution.

Analyst BB

F-643



MATRIX SPIKE RESULTS

LABORATORY NO.: 21656-6 HS

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 12-19-85

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 21 | 105 | 140 | 28.6 | 113 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS: spike results reported on dry weight basis,

Analyst BB



MATRIX SPIKE RESULTS

LABORATORY NO.: 21657-4MS

ANALYSIS: TFH Diesel

MATRIX: SOI 1

DATE TESTED: 12-20-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | <1 | 80 | 60 | 28.6 | 70 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS: spike results are based on dry weight basis.

Analyst BB

F-645



MATRIX SPIKE RESULTS

LABORATORY NO.: 21656-6MS
(21658)
DATE TESTED: 12-22-88

ANALYSIS: TFH Diesel

MATRIX: SDI 1

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVER. |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 41 | 80 | 60 | 23.6 | 7.2 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

Analyst BB



MATRIX SPIKE RESULTS

LABORATORY NO.: 21659-6MS

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 12-23-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | <1 | 100 | 90 | 10.5 | 95 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

12/23/88



MATRIX SPIKE RESULTS

LABORATORY NO.: 21677-4MS

ANALYSIS: TFH Diesel

MATRIX: soil

DATE TESTED: 12-27-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 330 | 390 | 670 | 52.8 | 200 * |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

* - High RPD and Spike percent recovery are due to ^{the high} hydrocarbon content of the sample which was spiked as well as to 10 dilution of spiked samples. BB

Analyst BB

F-648



MATRIX SPIKE RESULTS

LABORATORY NO.: 21717-GMS

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: (21716)
12-29-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | <1 | 150 | . | 6.4 | 155 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS:

Analyst BB



MATRIX SPIKE RESULTS

Laboratory No.: 21734-845

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 12-30-88

| Compound | Concentration | Sample | Spike | Duplicate Spike | RPD | Spike
Percent
Recovery |
|----------|---------------|--------------|--------------|-----------------|-----|------------------------------|
| | Spiked (PPB) | Result (PPB) | Result (PPB) | Result (PPB) | | |
| TFH | 100 | 24 | 114 | 111 | 2.7 | 112 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Analyst BB



MATRIX SPIKE RESULTS

LABORATORY NO.: 21727-7MS

ANALYSIS: TFH Diesel

MATRIX: soil

DATE TESTED: 12-31-88

| COMPOUND | CONCENTRATION
SPIKED (PPM) | SAMPLE
RESULT (PPM) | SPIKE
RESULT (PPM) | DUPLICATE SPIKE
RESULT (PPM) | RPD | SPIKE
PERCENT
RECOVERY |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 2400 | 1900 | 1500 | 23.5 | — * |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spike}} \times 100$$

COMMENTS: * High target analyte concentration in the sample
made spike recoveries non-reproducible.
88



MATRIX SPIKE RESULTS

Laboratory No.: 21739-2AS

Analysis: TFM Diesel

Matrix: SD, 1

Date Tested: 1-4-88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| TFM | 100 | 42 | 72 | 82 | 12.98 | 77 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21740-9MS

Analysis: TFH Diesel

Matrix: soil

Date Tested: 1-5-88 BB

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 5 | 100 | 122 | 36.1 | 111 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21757-745

Analysis: TFH Diesel

Matrix: soil

Date Tested: 1-6-88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | <4 | 113 | 115 | 1.8 | 114 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Analyst BB



MATRIX SPIKE RESULTS

Laboratory No.: 21758-445

Analysis: TFH Diesel

Matrix: soil

Date Tested: 1-6-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 44 | 124 | 125 | 1.3 | 124 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

21758-445

CAMMILL

MATRIX SPIKE RESULTS

Laboratory No.: 21774-2MS

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 1-6-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 180 | <4 | 123 | 122 | 0.82 | 122 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Analyst BB



MATRIX SPIKE RESULTS

Laboratory No.: 21771-4MSAnalysis: TFH DieselMatrix: SoilDate Tested: 1-10-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 54 | 116 | 114 | 1.7 | 115 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Analyt BB



MATRIX SPIKE RESULTS

Laboratory No.: 21775-2MSAnalysis: TFH DieselMatrix: SoilDate Tested: 1-10-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----------------------|------------------------------|
| TFH | 100 | <4 | 112 | 102 | 745
745 | 106 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Analyst: BB



MATRIX SPIKE RESULTS

Laboratory No.: 21786-2 MS
(21789)
Date Tested: 1-10-89

Analysis: TFH DIESEL

Matrix: SDI 1

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | <5 | 124 | 118 | 4.96 | 121 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1/10/89

Precision:

RPD

$$\frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

Percent Recovery =

$$\frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Analyst RR



MATRIX SPIKE RESULTS

Laboratory No.: 21803-2 MS

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 1-20-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 180 | 271 | 285 | 5 | 98 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

pw 1/24/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

83

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21806-2

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 1-21-89

| Compound | Concentration | Sample | Spike | Duplicate Spike | RPD | Spike
Percent
Recovery |
|----------|---------------|--------------|--------------|-----------------|------|------------------------------|
| | Spiked (ppm) | Result (ppm) | Result (ppm) | Result (ppm) | | |
| TFH | 100 | 1 | 100 | 98 | 2.02 | 98 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

m 1/24/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

BB

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21831-8 MS

Analysis: TFH Diesel

Matrix: 501/1

Date Tested: 1-24-89

| Compound | Concentration | Sample | Spike | Duplicate Spike | RPD | Spike |
|----------|-----------------------------|----------------------------|----------------------------|----------------------------|------|------------------|
| | Spiked (PPB) 100 | Result (PPB) 99 | Result (PPB) 99 | Result (PPB) 99 | | Percent Recovery |
| TFH | 100 | 51 | 82 | 97 | 10.9 | 92 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

M
1/24/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

BB

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21846-2 MS

Analysis: TFH Diesel

Matrix: Soil

(21848)

Date Tested: 1/25/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | < 1 | 86 | 98 | 13.0 | 92 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

120
1/30/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

analyst BB



MATRIX SPIKE RESULTS

Laboratory No.: 21872-2MS

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 1-28-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | <1 | 101 | 91 | 10.4 | 96 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1/30/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21879-2 MS + MSD Analysis: TFH-Diesel

Matrix: Soil

Date Tested: 1/28/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 41 | 106 | 109 | 2.8 | 108 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

PUC
4/30/85

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21899 MS+MSD Analysis: TFH-Diesel

Matrix: Soil

Date Tested: 1/30/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | 41 | 89 | 89 | 0 | 89 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12-
2/1/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} = 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} =$$



MATRIX SPIKE RESULTS

Laboratory No.: 21919-2MS

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2-1-89

| Compound | Concentration
Spiked (ppm) | Sample
Result (ppm) | Spike
Result (ppm) | Duplicate Spike
Result (ppm) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 100 | 21 | 130 | 150 | 14.3 | 140 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

2/1/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

CHM HILL

MATRIX SPIKE RESULTS

Laboratory No.: 21931-2 MS + MSD

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/2/89

| Compound | Concentration
Spiked (ppm) | Sample
Result (ppm) | Spike
Result (ppm) | Duplicate Spike
Result (ppm) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 100 | <1 | 120 | 112 | 6.9 | 116.20 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

2-8-89 BB

F-668



MATRIX SPIKE RESULTS

Laboratory No.: 21991-2 MS+MSD Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/8/89

| Compound | Concentration
Spiked (PPM) | Sample
Result (PPM) | Spike
Result (PPM) | Duplicate Spike
Result (PPM) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 180 | <1 | 152 | 153 | 1 | 858 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

2-8-8 F-669



MATRIX SPIKE RESULTS

Laboratory No.: 22002-2

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/13/89 MS+MSD

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFH | 180 | 1300 | 1600 | 360 | * | * |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

* High target analyte result, made it necessary to dilute sample and spikes 1/100. Therefore, spiking solution was diluted out. RPD and Spike percent recovery are not able to be calculated.

Precision:

RPD =

$$\frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

Percent Recovery =

$$\frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

2-14-89
89



MATRIX SPIKE RESULTS

Laboratory No.: 22042-2MS +
MSD

Analysis: TFH - Diesel

Matrix: Soil

Date Tested: 2/13/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 180 | 41 | 148 | 151 | 2.0 | 83% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

2-14-89 MB

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 22070-2
MS+MSD

Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/15/89

| Compound | Concentration
Spiked (PPM)
PPM | Sample
Result (PPM)
PPM | Spike
Result (PPM)
PPM | Duplicate Spike
Result (PPM)
PPM | RPD | Spike
Percent
Recovery |
|----------|--------------------------------------|-------------------------------|------------------------------|----------------------------------------|-----|------------------------------|
| TFH | 180 | 13 | 132 | 133 | 1 | 74.2 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

BB 2-21-89



MATRIX SPIKE RESULTS

Laboratory No.: 22087-3MS+MSD Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/15/89

| Compound | Concentration
Spiked (PPM)
ppm | Sample
Result (PPM)
ppm | Spike
Result (PPM)
ppm | Duplicate Spike
Result (PPM)
ppm | RPD | Spike
Percent
Recovery |
|----------|--------------------------------------|-------------------------------|------------------------------|----------------------------------------|-----|------------------------------|
| TFH | 180 | <1 | 114 | 123 | 8 | 66% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

177 2-21-89



MATRIX SPIKE RESULTS

Laboratory No.: 22142-2 MS+MSD Analysis: TFH Diesel

Matrix: Soil

Date Tested: 2/17/89

| Compound | Concentration
Spiked (ppm) | Sample
Result (ppm) | Spike
Result (ppm) | Duplicate Spike
Result (ppm) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 180 | <1 | 122 | 128 | 4.8 | 69% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

2-21-89 DB



MATRIX SPIKE RESULTS

Laboratory No.: 22333-2MS +MSD Analysis: TFH Diesel Matrix: Water
Date Tested: 2/22/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 5000 | 450 | 2916 | 2863 | 1.8 | 58% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

2-24-89
AB



MATRIX SPIKE RESULTS

Laboratory No.: DI

Analysis:

Matrix:

Date Tested: 2/23/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFM GAS | 1.179 | 0 | 1.091 (93%) | 0.915 (84%) | 5% | 89 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

2-24-89 JB

MATRIX SPIKE RESULTS

Laboratory No.: 22423
DIMS + DIMSD

Analysis: TFH Diesel

Matrix: Water

Date Tested: 2/24/89

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|-----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFH 22421 | 5000 | 450 | 3614 | 3540 | 2.1 | 72% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

2-24-89 513



MATRIX SPIKE RESULTS

Laboratory No.:

DI Spike

Analyst:

Matrix:

Date Tested:

2/25/85

| Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| 1.14 ppm | 1.14 | 1.142 | 1.14 | — | 100 |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | — | — | — | — | — |
| — | — | — | — | — | — |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

2.27-3.7 13



MATRIX SPIKE RESULTS

New Data System

22428, 22553
Laboratory No.: 22542
DI MS + DI MSD

Analyst: TFH Diesel

Matrix: Water

Date Tested: 3/21/89

| Compound | Concentration
Spiked (PPM)
ppm | Sample
Result (PPM)
ppm | Spike
Result (PPM)
ppm | Duplicate Spike
Result (PPM)
ppm | RPD | Spike
Percent
Recovery |
|----------|--------------------------------------|-------------------------------|------------------------------|----------------------------------------|-----|------------------------------|
| TFH | 5.0 | <0.05 | 4.2 | 4.2 | 0 | 84.9% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Laboratory No.: 22643, 644,
651, 659, 660 - Analysis TFH Diesel
Date Tested: 3/22/89 22674

Matrix: Water

| Compound | Concentration
Spiked (PPM)
ppm | Sample
Result (PPM)
ppm | Spike
Result (PPM)
ppm | Duplicate Spike
Result (PPM)
ppm | RPD | Spike
Percent
Recovery |
|----------|--------------------------------------|-------------------------------|------------------------------|----------------------------------------|-----|------------------------------|
| TFH | 5.0 | <0.05 | 1.4 | 1.4 | 0 | 30% |
| | | | | | | |
| | | | | | | |
| | | | | | | |

ME
3/24/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: DI
Date Tested: 4/4/89

Analysis:

Matrix:

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFM | 1.14 <i>mg/L</i> | <i>0</i> | 1.1 96% | 1.3 112% | 6.6 | 104 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

gm
46-89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

MATRIX SPIKE RESULTS

Laboratory No. 22738-1

Analysis

Matrix

Date Tested 4-5-89

TFH DIESEL

WATER

| Compound | Concentration Spiked (ppm) | Sample Result (ppm) | Spike Result (ppm) | Duplicate Spike Result (ppm) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH | 5.3 | 20.05 | 2.1 | 2.4 | 13.3 | 45% |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: DIMS

Analyst:

Matrix: WATER

Date Tested:

22739, 22760

TFH DIESEL

4-6-89

22738 22683

| Compound | Concentration | Sample | Spike | Duplicate | RPD | Spike
Percent
Recovery |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|------|------------------------------|
| | Spiked ppm | Result ppm | Result ppm | Result ppm | | |
| TFM | 5.0 | N/A | 5.2 | 4.7 | 19.2 | 99 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

DI MS + DI MSD
22890

Laboratory No.: 22891

Analysis: TFH Diesel

Matrix: Water

Date Tested: 4/12/89

| Compound | Concentration
Spiked $\mu\text{g/g}$ | Sample
Result $\mu\text{g/g}$ | Spike
Result $\mu\text{g/g}$ | Duplicate Spike
Result $\mu\text{g/g}$ | RPD | Spike
Percent
Recovery |
|----------|-----------------------------------------|----------------------------------|---------------------------------|-------------------------------------------|-----|------------------------------|
| TFH | 5.0 | N/A | 3.4 | 3.2 | 3.7 | 66% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Spectra Physics

23114-SMS+MSD

Laboratory No.: 23118

Analysis: TFM Diesel

Matrix: Soil

Date Tested: 5/11/89

| Compound | Concentration
Spiked (ppm)
ppm | Sample
Result (ppm)
ppm | Spike
Result (ppm)
ppm | Duplicate Spike
Result (ppm)
ppm | RPD | Spike
Percent
Recovery |
|----------|--------------------------------------|-------------------------------|------------------------------|----------------------------------------|------|------------------------------|
| TFM | 170 | <1 | 142 | 170 | 17.9 | 92.9% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

$$1.7 \text{ mls} \times \frac{5.0 \text{ mg}}{\text{ml}} = \frac{8.5 \text{ mg}}{.05 \text{ kg}} = 170 \text{ ppm}$$

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

SIC

RAIN II SPIKE RESULTS

Laboratory No.: D1 MS

Analysis:

Matrix:

Date Tested: 5/30

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFM | 1.14 PPM | 0 | 1.047/90% | 1.042/91% | .3 | 92.56 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

gm
6-2-89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 23306 MS+MSD

Analysis: TFH Diesel

Matrix: Water

Date Tested: 6/2/89

| Compound | Concentration
Spiked (ppm) | Sample
Result (ppm) | Spike
Result (ppm) | Duplicate Spike
Result (ppm) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 2.5 | <0.05 | 1.64 | 1.76 | 7.0 | 188% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

$$0.5 \text{ ml} \times \frac{5 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{1 \text{ l}} = 2.5 \text{ mg/l}$$

QM 6-5-89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 100$$

Consent:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 23357
23358
23372
23361
Date Tested: 6/5/84

Analysis:

Matrix:

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|---------|------------------------|
| TFM | Dim 4/mw | 1.14 | 2.1 | 1.001/88% | 958/84% | 20% 80% gm |
| | 2334-1 | 1.14 | 4.62 | 8.731 | 25.58% | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

excessive background as 23361.1
gm 6-8-89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

23357, 23358 23372

2341

Laboratory No.: DIMS+HSD 47 Analysis TFH Diesel

Matrix Water

Date Tested: 6/7/89

| Compound | Concentration | Sample | Spike | Duplicate Spike | RPD | Spike
Percent
Recovery |
|----------|---------------------|---------------------|---------------------|---------------------|-----|------------------------------|
| | Spiked (PPM)
PPM | Result (PPM)
PPM | Result (PPM)
PPM | Result (PPM)
PPM | | |
| TFH | 2.5 | N/A | 2.05 | 2.14 | 4.3 | 84% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

$$0.5 \text{ ml} \times \frac{5 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{1 \text{ l}} = 2.5 \text{ mg/l}$$

Concentration Spiked.

m

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}}$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

CHM HILL

MATRIX SPIKE RESULTS

Laboratory No.:

Analysis:

Matrix:

Date Tested: 6/14

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------------|------------------------|
| TFM | 01 | 1.14 | 4.1 | 9.98/8.03 | 1.0158/89% | 74.2 81 |
| | 23473 | 1.14 | 9.8 | 1.81/2.4 | 1.01/89% | 15.5 gm 82 gm |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:



MATRIX SPIKE RESULTS

Laboratory No.: *DIMS*

Analysis:

Matrix:

Date Tested: *6/12*

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----------|------------------------------|
| TFM | <i>1.14 µg/L</i> | <i>0.828</i> | <i>0.934</i> | <i>1.11 0.970</i> | <i>90</i> | <i>70%</i> |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*QAM
6-20-89*

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:



MATRIX SPIKE RESULTS

Laboratory No.s 23521 23454 23469
23500 23468
 Date Tested: 6/21/89 Sand Analysis: TFH Diesel Matrix: Soil
MS + MSD

| Compound | Concentration
Spiked (PPM) | Sample
Result (PPM) | Spike
Result (PPM) | Duplicate Spike
Result (PPM) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH | 50 | N/A | 3.0 | 34 | 12.5 | 64% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

x 100

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



Engineers
Planners
Economists
Scientists

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24158, 24195, 24191, 24202

Sample Matrix: Water

Date Analyzed: 9/09/89

Instrument ID: 3700-0400

Analyst: C. Stonich

Column ID: SPB-1

Test Methods: TFH DIESEL

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery | QC Limits Recovery |
|-------------------|-------------|----------------------|------------------|--------------|--------------------|
| DI MS/MSD 8/31/89 | 2.5 | N/A | 1.17 | 46.8 | 70 - 130 |
| 24158 MS/MSD | 2.5 | <0.05 | 1.23 | 49.2 | 70 - 130 |
| SAND MS/MSD | 50 | N/A | 29.6 | 59.2 | 70 - 130 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD | QC Limits RPD | Recovery |
|-------------------|-------------|-------------------|----------------|-------|---------------|----------|
| DI MS/MSD 8/31/89 | 2.5 | 0.87 | 34.8 | 29.4 | 30 | 70 - 130 |
| 24158 MS/MSD | 2.5 | 0.63 | 25.2 | 64.5 | 30 | 70 - 130 |
| SAND MS/MSD | 50 | 25 | 50 | 16.8 | 30 | 70 - 130 |

Results reported as mg/L.

RPD: 1 out of 3 outside limits

Spike Recovery: 6 out of 6 outside limits

Comments:

Analyst: *Field for CS*

Reviewed By: *[Signature]*

000009

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB Reference Number: 24242-3
 Sample Matrix: Water Date Analyzed: 9/28/89
 Instrument ID: Varian 3700 Analyst: J. Hargis
 Column ID: DB-5
 Test Methods: TFH Diesel

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery | QC Limits Recovery |
|------------|-------------|----------------------|------------------|--------------|--------------------|
| TFH Diesel | 5.00 | 0 | 5.800 | 120 | 70 - 130 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD | QC Limits RPD | QC Limits Recovery |
|------------|-------------|-------------------|----------------|-------|---------------|--------------------|
| TFH Diesel | 5.00 | 4.700 | 94 | 17.4 | 30 | 70 - 130 |

Results reported as mg/L.

Comments:

Analyst: J.H. /mj

Reviewed By: Greg Joubert

000125



MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24350

Sample Matrix: Water

Date Analyzed: 10-28-89

Instrument ID: Varian 3700

Analyst: J. Hargis

Column ID: DB-5

Test Methods: TFH Diesel

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery |
|------------|-------------|----------------------|------------------|--------------|
| TFH Diesel | 5.00 | 0 | 2.7 | 54 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD |
|------------|-------------|-------------------|----------------|-------|
| TFH Diesel | 5.00 | 2.600 | 52 | 3.8 |

Results reported as mg/L.

Comments: Deionized water used as spike sample

Analyst:

Jace Hargis

Reviewed By:

Greg Joubert

000273



Engineers
Planners
Economists
Scientists

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24372-1

Sample Matrix: Water

Date Analyzed: 10/29/89

Instrument ID: 3700-4423

Analyst: J. Hargis

Column ID: DB-5

Test Methods: TFH Diesel

| Compound | Spike Added | Sample Concentration | MS Concentration | MSX Recovery |
|------------|-------------|----------------------|------------------|--------------|
| TFH Diesel | 2.500 | N/A | 1.52 | 61 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD |
|------------|-------------|-------------------|----------------|-------|
| TFH Diesel | 2.500 | 1.46 | 58 | 5.0 |

Results reported as ug/L.

Comments:

Analyst: J.H. / 10/29/89

Reviewed By: Greg Joubert

000296

CH2M HILL

Redding Environmental Laboratory, 50 F-696

1 Road, Redding, California 96003

916 244.5227



Engineers
Planners
Economists
Scientists

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24898

Sample Matrix: Water

Date Analyzed: 12-14-89

Instrument ID: Varian 3700

Analyst: M. Sevier

Column ID: DB-5

Test Methods: TFH Diesel

| Compound | Spike
Added | Sample
Concentration | MS
Concentration | MSX
Recovery |
|------------|----------------|-------------------------|---------------------|-----------------|
| TFH Diesel | 2.50 | 0.12 | 1.230 | 44 |

| Compound | Spike
Added | MSD
Concentration | MSD %
Recovery | %
RPD |
|------------|----------------|----------------------|-------------------|----------|
| TFH Diesel | 2.50 | 2.730 | 104 | 81 |

Results reported as mg/L.

Comments:

Approved By

Grey J. J. J.



Engineers
Planners
Economists
Scientists

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 25020-5

Sample Matrix: Water

Date Analyzed: 12-16-89

Instrument ID: Varian 3700

Analyst: M. Sevier

Column ID: DB-5

Test Methods: TFH Diesel

| Compound | Spike
Added | Sample
Concentration | MS
Concentration | MSX
Recovery |
|------------|----------------|-------------------------|---------------------|-----------------|
| TFH Diesel | 2.50 | 0.06 | 2.13 | 83 |

| Compound | Spike
Added | MSD
Concentration | MSD %
Recovery | %
RPD |
|------------|----------------|----------------------|-------------------|----------|
| TFH Diesel | 2.50 | 1.750 | 68 | 20 |

Results reported as mg/L.

Comments:

Approved By Greg Jorden

MATRIX SPIKES/MATRIX SPIKE DUPLICATES
TFH-Gasoline (CA Method)



MATRIX SPIKE RESULTS

Laboratory No.: 24621-21

Analysis: Gasoline

Matrix: soil

Date Tested: 12-1-88

| Compound | Concentration
Spiked 1000 | Sample
Result 1000 | Spike
Result 1000 | Duplicate Spike
Result 1000 | RPD | Spike
Percent
Recovery |
|----------|-----------------------------------------|----------------------------------|---------------------------------|-------------------------------------------|------|------------------------------|
| TFH/Gas | 20,000 | 50 | 20,000 | 18,000 | 8.44 | 95.2 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

Analyzed by *guz*

F-699

W 1/1/89



MATRIX SPIKE RESULTS

Laboratory No.: 21629-11

Analysis: Gasoline

Matrix: soil

Date Tested: 12-2-88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| - TFH/Gas | 20,000 | 240 | 25,000 | 19,000 | 19.6 | 107.5 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.
Analyzed by GNG



MATRIX SPIKE RESULTS

Laboratory No.: 21574-2

Analysis: Gasoline

Matrix: oil

Date Tested: 1-24-88

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH/Gas | 20000 | 450 | 19337 | 20081 | 4.06 | 99.5 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

MS



MATRIX SPIKE RESULTS

Laboratory No.: 21659-4, B

Analysis: Gasoline

Matrix: Soil

Date Tested: 12/6/88

| Compound | | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|---------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/GAS | 21659-4 | 20,000 | 450 | 16,000 | 17,000 | 2.02 | 81.7 |
| | 21659-8 | 20,000 | 450 | 23,000 | 24,000 | 3.15 | 115 |
| | | | | | | | |
| | | | | | | | |

12/17/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

Analyst: GJG



MATRIX SPIKE RESULTS

Laboratory No.: 21770

Analyst: Gasoline

Matrix: soil

Date Tested: 12/8, 9/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH/Gas | 20,000 | 110 | 19563 | 20849 | 4.5 | 100 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

SMY



MATRIX SPIKE RESULTS

Laboratory No.: 21717-5

Analysis: Gasoline

Matrix: soil

Date Tested: 12/9/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH/Gas | 20,000 | 450 | 20000 | 23000 | 871 | 107.3 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12/12/88

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

Analyst: SM



MATRIX SPIKE RESULTS

Laboratory No.: 21734-10

Analysis: Gasoline

Matrix: soil

Date Tested: 12-13-88

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH/Gas | 20000 | 450 | 19,090 | 17,000 | 6.37 | 88.9 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Mr
4/2/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

CMY

MATRIX SPIKE RESULTS

Laboratory No.: 21740-9, 21757-2
21771-3

Analysis: Gasoline

Matrix: Soil

Date Tested: 12-18-88

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH/GAS | 21740-9 | 20,000 | 22000 | 22000 | 1.0 | 111 |
| | 21771-3 | 20,000 | 21000 | 20000 | 1.5 | 103 |
| | 21757-2 | 20,000 | 22000 | 23000 | 0.63 | 112 |

W 1/17/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

gry

F-706



MATRIX SPIKE RESULTS

Laboratory No. 21775, 21789, 21803

Analysis: Gasoline

Matrix: Soil

Date Tested: 12/21/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| -TFH/Gas | 21775-8 20000 | 250 | 22000 | 20000 | 5.95 | 104 |
| | 21789-5 1440 20000 | 65 | 19000 | 21000 | 5.20 | 100 |
| | 21803-6 20000 | 140 | 17000 | 17000 | 5.85 | 83.7 |

W
11/7/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

GUY

-707





MATRIX SPIKE RESULTS

Laboratory No.: 21832-6

Analysis: Gasoline

Matrix: Soil

Date Tested: 12-23-88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/Gas | 5000 | 41300 | 5700 | 5900 | 2.26 | 90.4 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

pw
1/1/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

GNY

F-708





MATRIX SPIKE RESULTS

Laboratory No.: 21831-8

Analysis: Gasoline

Matrix:

Date Tested: 12/23/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/GAS | 500 | 450 | 5400 | 5400 | 0.29 | 108 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Mr
12/29

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in part: per million.

guy



MATRIX SPIKE RESULTS

Laboratory No.: 21883

Analysis: Gasoline

Matrix: Soil

Date Tested: 12/27/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/Gas | 5000 | 1000 | 6045 | 5505 | 6.61 | 95.5 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12/27/88

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.
SMY



MATRIX SPIKE RESULTS

Laboratory No.:

Analysis:

Matrix: *Soil*Date Tested: *12-28-88*

| Compound | | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | ^{mean} Spike
Percent
Recovery |
|----------|---------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|----------------------------------------------|
| TFM | 21848-8 | 90 ppm | 60 ppm | 17 ppm | 17 ppm | 65% | 48.5 |
| | 21872-8 | 90 ppm | 45 ppm | 74 ppm | 67 ppm | 78% | 56 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:



MATRIX SPIKE RESULTS

Laboratory No.:

12-29-88

Analysis:

Matrix:

Soil

Date Tested:

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFM | 21899.9 | 90 ppb | 620 ppb | 118% | 10 | 132 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21919-7

Analysis: Gasoline

Matrix: soil

Date Tested: 12/30/88

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| - TFH/Gas | 5000 | 450 | 6200 | 5800 | 4.40 | 120 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.



MATRIX SPIKE RESULTS

Laboratory No.: 21923-4

Analysis: Gasoline

Matrix: soil

Date Tested: 1/4/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/Gas | 5000 | 450 | 5400 | 4900 | 6.43 | 102 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1/12/89

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

GUY



MATRIX SPIKE RESULTS

Laboratory No.:

Analyst:

Matrix:

Date Tested:

1/4/87

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFM | 21931-5 90 ppm | 410 ppm | 111% | 108% | 6% | 100.9% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

BB 1-16-84

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

CUMHILL

MATRIX SPIKE RESULTS

Laboratory No. 1

Analysis

Matrix

Date Tested: 1/6/89

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFH | 21991-2 | 4.0ppm | 83% | 77% | 5% | 88% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1-16-89
B8

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:



MATRIX SPIKE RESULTS

Laboratory No.:

Analysis:

Matrix: *Soil*Date Tested: *11/3/89*

| Compound | Concentration Spiked (PPM) | Sample Result (PPM) | Spike Result (PPM) | Duplicate Spike Result (PPM) | RPD | Spike Percent Recovery | |
|----------|----------------------------|---------------------|--------------------|------------------------------|----------|------------------------|--------------|
| TFH | <i>90 ppm</i> | <i>420 ppm</i> | <i>100 ppm</i> | <i>100 ppm</i> | <i>0</i> | <i>111%</i> | <i>1-6-2</i> |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

*Sample
100 ppm*

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 22087-3

Date Tested: 1/17/89

Analysis:

Matrix:

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 90 ppm | 75 ppm | 75 ppm | 81.637 ppm | 6% | 84.7 % |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1-19-89 BB

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



22070-3 MATRIX SPIKE RESULTS

Laboratory No.: 1119189

Analysis:

Matrix:

Date Tested:

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFH | 90 | 47 | 162/126 | 150/114 | 6% | 121% |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

BB 1-20-89

MATRIX SPIKE RESULTS

Laboratory No.: 22080-2

Analysis:

Matrix:

Date Tested: 1/23/89

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----------------------|------------------------|
| TFM | 90 | 110 | 107 | 102 | 5%
105% | 5%
117 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

1-30-89 BJB



MATRIX SPIKE RESULTS

Laboratory No.:

Analyst:

Matrix: *Soil*

Date Tested:

1/26/88

| Compound | | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|---------------|-------------------------------|------------------------|-----------------------|---------------------------------|-----------|------------------------------|
| TFH | <i>218472</i> | <i>180 ppm</i> | <i>20 ppm</i> | <i>19 ppm</i> | <i>144 ppm</i> | <i>3%</i> | <i>82.5</i> |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 23114-4 Soil

Analyst:

Matrix:

Date Tested: 5/9/89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFM | 5744/16 | 45 | 58102% | 55196% | 99 | 3 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

QM 5-11-89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 100$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.: 21662

Analysis: Gasoline

Matrix: water

Date Tested: 12-3, 4-88

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH/GAS | 400 | 41 | 320 | 350 | 6.33 | 84 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.

Gay

F-723

Mr
4/17/89



MATRIX SPIKE RESULTS

Laboratory No.: 21905-1

Analysis: Gasoline

Matrix: water

Date Tested: 1-4-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/Gas | 100 | 21 | 101 | 98 | 2.13 | 99.5 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1/11/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.
GNY



MATRIX SPIKE RESULTS

Laboratory No.: 21925-2

Analysis: Gasoline

Matrix: Water

Date Tested: 1-4-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| TFH/Gas | 100 | 21 | 95 | 94.9 | 3.04 | 93.0 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

11/2/89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments: Results in parts per million.



MATRIX SPIKE RESULTS

Laboratory No.: 22542, 22674 Analysis: TFH-GAS Matrix: water
22643, 22683
Date Tested: 3/16/87 DI MS

| Compound | Concentration Spiked (PPB) ^{ppm} | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|-------------------------------------------|---------------------|--------------------|------------------------------|------|------------------------|
| TFH | 1.14 | N/A | 0.93 | 1.09 | 15.8 | 89 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

12

Precision: $RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$

Accuracy: $\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$

Comments:



MATRIX SPIKE RESULTS

Laboratory No.: 22738
22739
22760
Date Tested: 3-22-89

Analysis: TFH GAS

Matrix: water

| Compound | Concentration
Spiked (PPB)
<i>ppm</i> | Sample
Result (PPBT) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|---------------------------------------------|-------------------------|-----------------------|---------------------------------|-----|------------------------------|
| TFH | 1.14 | 0.089 | 1.229 | 1.355 | 4% | 108 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

1.19 = 104%
1.27 = 111

gm
3-28-89

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Soil 22790-2
Laboratory No.: H₂O 22817-1

Analyst:

Matrix:

Date Tested: 3/78

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|----------|----------------------------|---------------------|--------------------|------------------------------|-----|------------------------|
| TFH | 02817-1 | 1.14 | 5.21
1.98 (86%) | 1.00 (25%) | 4.5 | 90 |
| | 02790-2 | 1.14 | 10.1
1.89 (76%) | 1.94 (82%) | 3 | 79% |
| | | | | | | |
| | | | | | | |
| | | | | | | |

P

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Comments:

013

3-31-86

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$



MATRIX SPIKE RESULTS

Laboratory No.:

22906-1

Analysis:

Matrix:

Date Tested:

22905
Apr 7

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|----------|-------------------------------|------------------------|-----------------------|---------------------------------|---------|------------------------------|
| TFH | 22906-1 | 2.8 | 4.1 | 2.019/2.7 | 1.769/2 | 77% |
| | 22905 | 1.0 | 5 | 1.11/2.7 | 2.267/2 | 92% |
| | | | | | | |
| | | | | | | |
| | | | | | | |

QM
4-10-89

Precision:

RPD =

Spike Result - Duplicate Spike Result

÷ 200

Spike Result × Duplicate Spike Result

Accuracy:

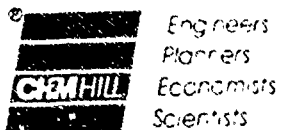
Percent Recovery =

Mean Spike Result - Sample Result

Concentration Spiked

÷ 100

Comments:



MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24158

Sample Matrix: Water

Date Analyzed: 08/29/89

Instrument ID: InaLor

Analyst: R. Craven

Column ID: Carbowax

Test Methods: TFH Gas

| Compound | Spike
Added | Sample
Concentration | MS
Concentration | MSX
Recovery | QC Limits
Recovery |
|----------|----------------|-------------------------|---------------------|-----------------|-----------------------|
| TFH Gas | 3 | 0 | 2. - | 96 | 70 - 130 |

| Compound | Spike
Added | MSD
Concentration | MSD %
Recovery | %
RPD | QC Limits
RPD | Recovery |
|----------|----------------|----------------------|-------------------|----------|------------------|----------|
| TFH Gas | 3.08 | 2.903 | 94 | 2.1 | 30 | 70 - 130 |

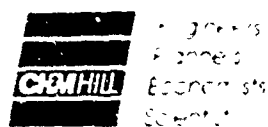
Results reported as mg/l

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Comments: Spikes prepared in laboratory pure water due to limited sample.

Analyst: Bennett J Tyson Reviewed By: Mc



MATRIX SPIKE / MATRIX SPIKE DUPLICATE RESULTS

Client: BSA AFB

Reference Number: 24185, 24191

Project: MTRX AFB

Date Analyzed: 9/5/89

Instrument: GC

Analyst: R. Craven

Compound: TFM Gas

Test Method: TFM Gas

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery | QC Limits Recovery |
|----------|-------------|----------------------|------------------|--------------|--------------------|
| TFM Gas | 3.08 | 0 | 2.998 | 97 | 70 - 130 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD | QC Limits RPD | Recovery |
|----------|-------------|-------------------|----------------|-------|---------------|----------|
| TFM Gas | 3.08 | 2.952 | 96 | 0.7 | 30 | 70 - 130 |

Results reported as mg/L.

RPD: 0 out of 1 outside limits

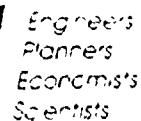
Spike Recovery: 0 out of 2 outside limits

Comments: Spikes prepared in laboratory pure water due to limited sample.

Analyst: RAC/gny

Reviewed By: Guy Paul

000058



INDICATE RESULTS

Reference Number: 24202, 24242, 24246, 24265

Date Analyzed: 9/12/89
Analyst: R. Craven

| Compound | Spike Added | Sample Concentration | MS Concentration | MSX Recovery | QC Limits Recovery |
|----------|-------------|----------------------|------------------|--------------|--------------------|
| TFM Gas | 3.08 | 0 | 2.740 | 89 | 70 - 130 |

| Compound | Spike | MSD | MSD % | % | QC Limits | |
|----------|-------|---------------|----------|-----|-----------|----------|
| | Added | Concentration | Recovery | RPD | RPD | Recovery |
| TFM Gas | 3.00 | 2.511 | 85 | 3.2 | 30 | 70 - 130 |

RPD: 0 out of 1 outside limits

Comments: Spikes prepared in laboratory p

Comments: Spikes prepared in laboratory pure water due to limited sample.

Reviewed By: Grey Joubert

000112



Engineers
Planners
Economists
Scientists

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24304, 24313

Sample Matrix: Water

Date Analyzed: 9/19/89

Instrument: GC - Injector

Analyst: R. Craven

Column: GC - Carbowax

Sample Method: TFM Gas

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery | QC Limits Recovery |
|----------|-------------|----------------------|------------------|--------------|--------------------|
| TFM Gas | 3.08 | 0 | 3.120 | 101 | 70 - 130 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD | QC Limits RPD | Recovery |
|----------|-------------|-------------------|----------------|-------|---------------|----------|
| TFM Gas | 3.08 | 3.01 | 98 | 2.1 | 30 | 70 - 130 |

Results reported as mg/L.

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Comments: Spikes prepared in laboratory pure water due to limited sample.

Analyst: RAC/gm

Reviewed By: gray joubert

000216

CH2M HILL

Beale Air Force Base, California 94304

916 244 5227

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE RESULTS

Client: Beale AFB

Reference Number: 24331, 24350, 24372

Sample Matrix: Water

Date Analyzed: 9/25/89

Instrument ID: Tracor

Analyst: B. Tyson

Column ID: Carbowax

Test Methods: TFH Gas

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery | QC Limits Recovery |
|----------|-------------|----------------------|------------------|--------------|--------------------|
| TFH Gas | 3.08 | 0 | 2.970 | 96 | 70 - 130 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD | QC Limits RPD | Recovery |
|----------|-------------|-------------------|----------------|-------|---------------|----------|
| TFH Gas | 3.08 | 2.860 | 97 | 3.17 | 30 | 70 - 130 |

Results reported as mg/L

RPD: 0 out of outside limits

Comments: Deionized water used as spike sample.

Analyst: BFT

Reviewed By: gma

000200

CHEM HILL

Feeding Environmental Laboratory 5

F-735

11 Road, Redding, California 96003

916 244 5227



Engineers
Planners
Economists
Scientists

DI MATRIX SPIKE/DI MATRIX SPIKE DUPLICATE RESULTS

Client: Beale Air Force Base

Reference Number: 24898, 27154

Sample Matrix: Water

Date Analyzed: 11-30-89

Instrument ID: Tracor

Analyst: G. Jordan

Column ID: Carbowax

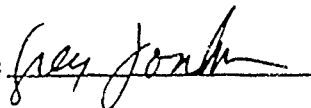
Test Method: TFM Gas

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery |
|----------|-------------|----------------------|------------------|--------------|
| TFM Gas | 2.91 | 0 | 2.890 | 99 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD |
|----------|-------------|-------------------|----------------|-------|
| TFM Gas | 2.91 | 2.860 | 98 | 1.04 |

Results reported as mg/L.

Comments: Deionized water used as spike sample.

Approved By: 

CH2M HILL

Redding Environmental Laboratory,

F-736

Var Road, Redding, California 96003

916 244 5227



Engineers
Planners
Economists
Scientists

DI MATRIX SPIKE/DI MATRIX SPIKE DUPLICATE RESULTS

Client: Beale Air Force Base

Reference Number: 24925, 24934, 24937, 24951

Sample Matrix: Water

Date Analyzed: 11-30-89

Instrument ID: Tracor

Analyst: G. Jordan

Column ID: Carbowax

Test Methods: TFH Gas

| Compound | Spike Added | Sample Concentration | MS Concentration | MS% Recovery |
|----------|-------------|----------------------|------------------|--------------|
| TFH Gas | 2.91 | 0 | 2.410 | 83 |

| Compound | Spike Added | MSD Concentration | MSD % Recovery | % RPD |
|----------|-------------|-------------------|----------------|-------|
| TFH Gas | 2.91 | 2.390 | 82 | .83 |

Results reported as mg/L.

Comments: Deionized water used as spike sample.

Approved By:

G. Jordan

CEM HILL

Redding Environmental Laboratory,

F-737

1st Road, Redding, California 96003

916.244.5227



DI MATRIX SPIKE/DI MATRIX SPIKE DUPLICATE RESULTS

Client: Beale Air Force Base

Reference Number: 25020, 25115, 25151

Sample Matrix: Water

Date Analyzed: 12-14-89

Instrument ID: Tracor

Analyst: H. Sevier

Column ID: Carbowax

Test Methods: TFH Gas

| Compound | Spike
Added | Sample
Concentration | MS
Concentration | MS%
Recovery |
|----------|----------------|-------------------------|---------------------|-----------------|
| TFH Gas | 2.91 | 0 | 2.410 | 83 |

| Compound | Spike
Added | MSD
Concentration | MSD %
Recovery | %
RPD |
|----------|----------------|----------------------|-------------------|----------|
| TFH Gas | 2.91 | 2.400 | 82 | 0.4 |

Results reported as mg/L.

Comments: Deionized water used as spike sample.

Approved By: Gray Jordan

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

ICP Metals (SW6010)

MATRIX SPIKE MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFBMatrix (soil/water): WATER Reference No: 22333-1Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2015 | 2043 | 1.4 | P |
| Antimony | 395.9 | 406.8 | 2.7 | P |
| Arsenic | 2076 | 2115 | 1.9 | P |
| Barium | 2004 | 2045 | 2.0 | P |
| Beryllium | 51.1 | 52.3 | 2.3 | P |
| Cadmium | 34.7 | 34.4 | 0.9 | P |
| Calcium | 23770 | 24080 | 1.3 | P |
| Chromium | 207.8 | 211.2 | 1.6 | P |
| Cobalt | 512.9 | 524.5 | 2.2 | P |
| Copper | 237.7 | 251.1 | 5.5 | P |
| Iron | 1055 | 1075 | 1.9 | P |
| Lead | 492.4 | 503.2 | 2.2 | P |
| Magnesium | 12760 | 12920 | 1.2 | P |
| Manganese | 507.9 | 517.3 | 1.8 | P |
| Mercury | | | | NR |
| Nickel | 549.7 | 567.3 | 3.2 | P |
| Potassium | 6569 | 6435 | 2.1 | P |
| Selenium | 1927 | 1997 | 3.6 | P |
| Silver | 48.9 | 49.6 | 1.4 | P |
| Sodium | 68990 | 69660 | 1.0 | P |
| Thallium | 2106 | 2154 | 2.2 | P |
| Vanadium | 504.8 | 515.3 | 2.1 | P |
| Zinc | 520.5 | 537.6 | 3.2 | P |
| MOLYBDENUM | 489.8 | 498.9 | 1.8 | P |

ICP RUN 2-27-89 22333

P-739

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AF13Matrix (soil/water): WATER Reference No: 22333-1Units (ug/l or mg/kg dry weight): G/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 16.5 | 16.8 | 1.8 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

P6-GF-228-09
22333

F-750

DUPMSD

MATRIX SPIKE MATRIX SPIKE DUPLICATE

Lab Name CHAM HILL Contract BEALE AFB

Matrix (soil/water). WATER Reference No: 22345-2

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2038 | 2084 | 2.2 | P |
| Antimony | 390.4 | 388.4 | 0.5 | P |
| Arsenic | 2044 | 2014 | 0.1 | P |
| Barium | 2051 | 2027 | 1.2 | P |
| Beryllium | 53.8 | 53.3 | 0.9 | P |
| Cadmium | 34.7 | 37.4 | 7.5 | P |
| Calcium | 26940 | 26680 | 1.0 | P |
| Chromium | 210.3 | 208.2 | 10.0 | P |
| Cobalt | 509.2 | 509.0 | 0.0 | P |
| Copper | 254.5 | 251.2 | 1.3 | P |
| Iron | 1115 | 1115 | 0.0 | P |
| Lead | 504.4 | 525.5 | 4.1 | P |
| Magnesium | 15470 | 15290 | 1.2 | P |
| Manganese | 539.7 | 534.8 | 0.9 | P |
| Mercury | | | | NR |
| Nickel | 547.3 | 540.3 | 1.4 | P |
| Potassium | 7038 | 6929 | 1.6 | P |
| Selenium | 1951 | 1951 | 0.0 | P |
| Silver | 53.3 | 50.5 | 5.4 | P |
| Sodium | 62330 | 61650 | 1.1 | P |
| Thallium | 2216 | 2205 | 0.5 | P |
| Vanadium | 510.5 | 505.0 | 1.1 | P |
| Zinc | 530.4 | 536.9 | 1.1 | P |
| MOLYBDENUM | 504.7 | 501.5 | 0.6 | P |

ICP 3-2-87 22345-2
22345-2.3
22363-1.2

F-741

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFBMatrix (soil/water): WATER Reference No: 22345-2Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 20.9 | 24.1 | 14.2 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

PB-GF 3-9-89
 22345-2
 22345-2,1
 22345-2,2
 22345-2,3
 22345-2,4

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22383-2

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 1.94 | 2.02 | 3.0 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |

14g - cv 3-1-87 22383-2
 22383-1,2
 22383-1,2,3
 22405-1

F-743

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22398-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2098 | 2126 | 1.3 | P |
| Antimony | 424.4 | 424.4 | 0.0 | P |
| Arsenic | 2049 | 2032 | 0.6 | P |
| Barium | 2035 | 2028 | 0.3 | P |
| Beryllium | 53.5 | 52.9 | 1.1 | P |
| Cadmium | 39.1 | 40.1 | 2.5 | P |
| Calcium | 27750 | 27200 | 2.0 | P |
| Chromium | 216.0 | 213.5 | 1.2 | P |
| Cobalt | 521.8 | 512.6 | 1.8 | P |
| Copper | 258.3 | 256.8 | 0.6 | P |
| Iron | 1114 | 1109 | 0.4 | P |
| Lead | 513.3 | 512.4 | 0.2 | P |
| Magnesium | 20860 | 20530 | 1.5 | P |
| Manganese | 517.8 | 514.5 | 0.6 | P |
| Mercury | | | | NR |
| Nickel | 510.8 | 506.0 | 0.9 | P |
| Potassium | 5460 | 5471 | 0.2 | P |
| Selenium | 1963 | 1936 | 1.4 | P |
| Silver | 53.4 | 52.7 | 1.3 | P |
| Sodium | 17160 | 17000 | 0.9 | P |
| Thallium | 2241 | 2225 | 0.7 | P |
| Vanadium | 520.8 | 517.6 | 6.2 | P |
| Zinc | 522.8 | 519.7 | 0.6 | P |
| MOLYBDENUM | 503.6 | 501.8 | 0.4 | P |

ICP 3-3-89
22398-1,2,3
22405-1

F-744

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22398-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|-------|--------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | 44.2 | 43.9 | 0.7 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 18.0* | 17.8** | 1.1 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 75.5* | 76.5** | 1.3 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | NR |

Pb - GP 3-15-84
22302
22394

DICHMSHD

As - GP 3-15-84
22382 22505
22383 22455
22398
22405
22445

F-745

Cd - GP 3-16-89
22392
22393
22398
22405
22445
22455

* POSTSPIKE
** DUPLICATE POSTSPIKE

MATRIX SPIKE MATRIX SPIKE DUPLICATE

Lab Name CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22428-4

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 1991 | 2075 | 4.1 | P |
| Antimony | 364.5 | 375.0 | 2.0 | P |
| Arsenic | 1878 | 1937 | 3.1 | P |
| Barium | 1985 | 2034 | 2.4 | P |
| Beryllium | 48.6 | 50.2 | 3.2 | P |
| Cadmium | 40.3 | 42.1 | 4.4 | P |
| Calcium | 4871 | 4945 | 1.5 | P |
| Chromium | 200.0 | 203.7 | 18.3 | P |
| Cobalt | 467.0 | 479.0 | 2.5 | P |
| Copper | 245.3 | 253.2 | 3.2 | P |
| Iron | 1124 | 1010 | 10.7 | P |
| Lead | 460.7 | 478.0 | 3.7 | F |
| Magnesium | 4883 | 4925 | 0.9 | P |
| Manganese | 475.2 | 488.9 | 2.8 | P |
| Mercury | | | | NR |
| Nickel | 474.5 | 490.7 | 3.4 | P |
| Potassium | 5039 | 4953 | 1.7 | P |
| Selenium | 1865 | 1891 | 1.4 | P |
| Silver | 46.3 | 47.7 | 3.0 | P |
| Sodium | 5291 | 5454 | 3.0 | P |
| Thallium | 1947 | 19 | 2.5 | P |
| Vanadium | 469.2 | 481.1 | 2.5 | P |
| Zinc | 494.8 | 507.2 | 2.5 | P |
| MOLYBDENUM | 450.7 | 461.1 | 2.3 | F |

1CA 3-8-89

22421
22422
22423
22424
22425

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFBMatrix (soil/water): WATER Reference No: 22428-4Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 22.9 | 22.5 | 1.8 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE A#8

Matrix (soil/water): WATER Reference No 2445-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 2.20 | 2.19 | 0.5 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

Ng-CV-30-71
22445
22455

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILLContract: BEALE APBMatrix (soil/water): WATERReference No: 22445-1Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|-----|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 2.11 | 2.2 | 6.0 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22494-3

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 1999 | 2017 | 0.9 | P |
| Antimony | 403.1 | 80.6 | 0.2 | P |
| Arsenic | 2097 | 2108 | 0.5 | P |
| Barium | 2061 | 2083 | 1.1 | P |
| Beryllium | 51.7 | 52.4 | 1.3 | P |
| Cadmium | 44.6 | 43.7 | 2.0 | P |
| Calcium | 10470 | 10570 | 0.9 | P |
| Chromium | 211.1 | 212.2 | 0.5 | P |
| Cobalt | 505.0 | 509.8 | 0.9 | P |
| Copper | 254.8 | 254.5 | 0.1 | P |
| Iron | 1045 | 1040 | 0.5 | P |
| Lead | 515.3 | 515.0 | 0.1 | P |
| Magnesium | 9198 | 9274 | 0.8 | P |
| Manganese | 511.5 | 515.3 | 0.7 | P |
| Mercury | | | | NR |
| Nickel | 513.1 | 522.5 | 1.8 | P |
| Potassium | 6117 | 6134 | 0.3 | P |
| Selenium | 2009 | 2019 | 0.5 | P |
| Silver | 52.1 | 51.9 | 0.4 | P |
| Sodium | 15790 | 15940 | 1.0 | P |
| Thallium | 2111 | 2145 | 1.6 | P |
| Vanadium | 563.4 | 568.0 | 0.8 | P |
| Zinc | 538.5 | 536.1 | 0.4 | P |
| MOLYBDENUM | 521.7 | 523.1 | 0.3 | P |

ICP 3-14-89 22382-1,3
22505-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM MILLContract: BEALE A#8Matrix (soil/water): WATERReference No: 22512-1Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2108 | 2070 | 1.8 | P |
| Antimony | 427.3 | 418.1 | 2.2 | P |
| Arsenic | 2074 | 2043 | 1.5 | P |
| Barium | 2080 | 2062 | 0.9 | P |
| Beryllium | 53.0 | 52.7 | 0.6 | P |
| Cadmium | 46.2 | 46.1 | 0.2 | P |
| Calcium | 44400 | 44360 | 0.1 | P |
| Chromium | 211.1 | 207.1 | 1.9 | P |
| Cobalt | 521.5 | 516.4 | 1.0 | P |
| Copper | 262.4 | 257.6 | 1.8 | P |
| Iron | 1053 | 1049 | 0.4 | P |
| Lead | 537.6 | 522.2 | 2.9 | P |
| Magnesium | 31770 | 31710 | 0.2 | P |
| Manganese | 524.4 | 520.1 | 0.8 | P |
| Mercury | | | | NR |
| Nickel | 519.6 | 510.0 | 1.9 | P |
| Potassium | 6012 | 6093 | 1.3 | P |
| Selenium | 2063 | 2010 | 2.6 | P |
| Silver | 48.7 | 48.7 | 0.0 | P |
| Sodium | 20910 | 20750 | 0.8 | P |
| Thallium | 2103 | 2098 | 0.2 | P |
| Vanadium | 523.8 | 520.2 | 0.7 | P |
| Zinc | 563.6 | 537.0 | 4.8 | P |
| MOLYBDENUM | 478.2 | 480.6 | 0.5 | P |

ICP - 3-16-89
 22512
 22542
 22601
 22622

F-751

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22512-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|-------|--------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | 38 | 38.1 | 0.3 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 19.6 | 19.2 | 4.1 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 75.5* | 75.0** | 0.7 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

PS GP 3-18-81
22455
22428
22505
22512
DUPMSMSD

AS MF 3-23-81
22512
22505

F-752

GP 3-24-81
22512
22505

* POSTSPIKE
** DUPLICATE POSTSPIKE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFBMatrix (soil/water): WATER Reference No: 22643-1Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | 40.0 | 40.6 | 1.0 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 23.5 | 21.3 | 10.7 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 9.6 | 10.0 | 4.1 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |

DB-GFAA-3-30-89 AS-GFAA-3-30-89 S

1-89

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22643-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2236 | 2291 | 2.4 | P |
| Antimony | 435.5 | 420.2 | 3.6 | P |
| Arsenic | 2150 | 2136 | 0.6 | P |
| Barium | 2125 | 211 | 0.8 | P |
| Beryllium | 50.3 | 50.1 | 0.4 | P |
| Cadmium | 45.8 | 44.7 | 2.4 | P |
| Calcium | 12950 | 13120 | 1.3 | P |
| Chromium | 214.1 | 213.7 | 0.1 | P |
| Cobalt | 551.4 | 546.1 | 1.0 | P |
| Copper | 270.5 | 273.2 | 1.0 | P |
| Iron | 1287 | 1299 | 0.8 | P |
| Lead | 502.4 | 500.5 | 0.4 | P |
| Magnesium | 9951 | 10060 | 1.1 | P |
| Manganese | 503.2 | 499.9 | 0.7 | P |
| Mercury | | | | NR |
| Nickel | 535.9 | 540.7 | 0.9 | P |
| Potassium | 5801 | 5930 | 2.2 | P |
| Selenium | 1998 | 1981 | 0.8 | P |
| Silver | 54.7 | 53.7 | 1.8 | P |
| Sodium | 10030 | 10220 | 1.9 | P |
| Thallium | 2143 | 2158 | 0.7 | P |
| Vanadium | 529.1 | 530.2 | 0.2 | P |
| Zinc | 525.8 | 530.5 | 0.9 | P |
| MOLYBDENUM | 515.3 | 516.7 | 0.3 | P |

ICP - 3-29-89
 22643-1,2,3
 22644-1
 22645-1
 22646-1
 22647-1
 22648-1
 22649-1
 22650-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22674-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 1986 | 1990 | 0.2 | P |
| Antimony | 408.6 | 416.4 | 1.9 | P |
| Arsenic | 1942 | 1944 | 0.1 | P |
| Barium | 1997 | 2010 | 0.6 | P |
| Beryllium | 48.9 | 49.3 | 0.8 | P |
| Cadmium | 57.9 | 57.2 | 1.2 | P |
| Calcium | 15050 | 15340 | 1.9 | P |
| Chromium | 202.0 | 201.8 | 0.1 | P |
| Cobalt | 495.5 | 497.1 | 0.3 | P |
| Copper | 249.1 | 250.7 | 0.6 | P |
| Iron | 1009 | 1021 | 1.2 | P |
| Lead | 479.7 | 472.7 | 1.5 | P |
| Magnesium | 10330 | 10520 | 1.8 | P |
| Manganese | 488.5 | 489.8 | 0.3 | P |
| Mercury | | | | NR |
| Nickel | 489.1 | 497.5 | 1.7 | P |
| Potassium | 6045 | 6424 | 6.1 | P |
| Selenium | 1941 | 1972 | 1.6 | P |
| Silver | 48.2 | 48.9 | 1.4 | P |
| Sodium | 20510 | 20800 | 1.4 | P |
| Thallium | 1883 | 1893 | 0.5 | P |
| Vanadium | 504.6 | 506.6 | 0.4 | P |
| Zinc | 515.6 | 517.7 | 0.4 | P |
| MOLYBDENUM | 470.8 | 474.0 | 0.7 | P |

ICF-3-30-89
22674-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE A#8

Matrix (soil/water): WATER Reference No: 22603-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 2.18 | 2.28 | 4.5 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

CV - 3.23-81
2100
22603
22603
22603
22603

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL

Contract: BEALE AFB

Matrix (soil/water): WATER

Reference No: 22738-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2021 | 2050 | 1.4 | P |
| Antimony | 10.5 | 423.5 | 1.6 | P |
| Arsenic | 1989 | 2036 | 2.3 | P |
| Barium | 2045 | 2077 | 1.6 | P |
| Beryllium | 49.3 | 50.6 | 2.6 | P |
| Cadmium | 56.8 | 55.9 | 1.6 | P |
| Calcium | 15950 | 16180 | 1.4 | P |
| Chromium | 207.4 | 210.2 | 1.3 | P |
| Cobalt | 501.5 | 520.0 | 3.6 | P |
| Copper | 253.3 | 257.5 | 1.6 | P |
| Iron | 994.6 | 1015 | 2.0 | P |
| Lead | 19.9 | 19.2 | 3.4 | F |
| Magnesium | 10940 | 11030 | 1.0 | P |
| Manganese | 484.4 | 494.0 | 2.0 | P |
| Mercury | | | | NR |
| Nickel | 502.3 | 525.1 | 4.4 | P |
| Potassium | 6138 | 6251 | 1.8 | P |
| Selenium | 1955 | 1981 | 1.3 | P |
| Silver | 48.7 | 52.3 | 7.1 | P |
| Sodium | 22800 | 23070 | 1.2 | P |
| Thallium | 1965 | 2053 | 4.4 | P |
| Vanadium | 520.3 | 530.8 | 2.0 | P |
| Zinc | 505.7 | 511.3 | 1.1 | P |
| MOLYBDENUM | 487.0 | 493.1 | 1.2 | P |

ICP 5-31-89
22738-1,2,3,4
22739-1,3,4

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22768-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2259 | 2289 | 1.3 | P |
| Antimony | 425.4 | 423.3 | 0.5 | P |
| Arsenic | 2223 | 2239 | 0.7 | P |
| Barium | 2238 | 2257 | 0.8 | P |
| Beryllium | 55.8 | 56.6 | 1.4 | P |
| Cadmium | 51.6 | 52.1 | 1.0 | P |
| Calcium | 20340 | 20440 | 0.5 | P |
| Chromium | 226.2 | 226.3 | 0.0 | P |
| Cobalt | 540.1 | 549.0 | 1.4 | P |
| Copper | 281.4 | 283.4 | 0.7 | P |
| Iron | 1302 | 1326 | 1.8 | P |
| Lead | 504.1 | 523.9 | 3.8 | P |
| Magnesium | 16730 | 16830 | 0.6 | P |
| Manganese | 514.2 | 516.5 | 0.4 | P |
| Mercury | | | | NR |
| Nickel | 547.1 | 556.7 | 1.7 | P |
| Potassium | 6552 | 6829 | 4.1 | P |
| Selenium | 2174 | 2232 | 2.6 | P |
| Silver | 53.4 | 53.4 | 0.0 | P |
| Sodium | 18810 | 18990 | 1.0 | P |
| Thallium | 2149 | 2163 | 0.6 | P |
| Vanadium | 569.8 | 574.0 | 0.7 | P |
| Zinc | 580.7 | 595.6 | 2.5 | P |
| MOLYBDENUM | 520.1 | 523.8 | 0.3 | P |

CP 4-3-89
22768-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name. CH2M HILL Contract BEALE AFBMatrix (soil/water): WATER Reference No: 22776-1Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|----------|----------|-------|----|
| Aluminum | 30380 | 28110 | 7.8 | P |
| Antimony | 437.7 | 460.7 | 5.1 | P |
| Arsenic | 2263 | 2216 | 2.1 | P |
| Barium | 1924 | 1819 | 2.9 | P |
| Beryllium | 57.5 | 55.0 | 4.4 | P |
| Cadmium | 47.6 | 47.7 | 0.2 | P |
| Calcium | 5692 | 5438 | 4.6 | P |
| Chromium | 208.8 | 205.7 | 1.5 | P |
| Cobalt | 503.0 | 487.6 | 3.1 | P |
| Copper | 357.3 | 343.3 | 4.0 | P |
| Iron | 1672 | 1592 | 4.9 | P |
| Lead | 442.5 | 451.0 | 1.9 | P |
| Magnesium | 5162 | 4984 | 3.5 | P |
| Manganese | 477.2 | 461.5 | 3.4 | P |
| Mercury | | | | NR |
| Nickel | 727.7 | 716.3 | 1.6 | P |
| Potassium | 25010000 | 24670000 | 1.4 | P |
| Selenium | 2039 | 2023 | 0.8 | P |
| Silver | 55.5 | 56.8 | 2.3 | P |
| Sodium | 323500 | 309400 | 4.5 | P |
| Thallium | 2293 | 2236 | 2.5 | P |
| Vanadium | 5411 | 5227 | 3.5 | P |
| Zinc | 528.6 | 514.2 | 2.8 | P |
| MOLYBDENUM | 16470 | 15850 | 3.8 | P |

P 8 7-89

22776-1
22776-1-3

11-760

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22792-3

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 1.94 | 2.02 | 4.0 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

F-761

DUPMSMSD

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22017-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2094 | 2069 | 1.2 | P |
| Antimony | 419.2 | 422.1 | 0.7 | P |
| Arsenic | 2034 | 2030 | 0.2 | P |
| Barium | 2075 | 2069 | 0.3 | P |
| Beryllium | 51.2 | 50.9 | 0.4 | P |
| Cadmium | 47.5 | 47.4 | 0.2 | P |
| Calcium | 5773 | 5749 | 0.4 | P |
| Chromium | 211.5 | 210.6 | 0.4 | P |
| Cobalt | 525.8 | 521.7 | 0.8 | P |
| Copper | 263.2 | 262.2 | 0.4 | P |
| Iron | 1015 | 1023 | 0.8 | P |
| Lead | 526.3 | 496.9 | 5.8 | P |
| Magnesium | 5396 | 5370 | 0.5 | P |
| Manganese | 197.7 | 493.5 | 0.8 | P |
| Mercury | | | | NR |
| Nickel | 524.7 | 520.2 | 0.9 | P |
| Potassium | 5397 | 5262 | 2.5 | P |
| Selenium | 2020 | 2034 | 0.7 | P |
| Silver | 51.7 | 53.8 | 0.3 | P |
| Sodium | 5946 | 5817 | 2.2 | P |
| Thallium | 2133 | 2135 | 0.1 | P |
| Vanadium | 508.7 | 507.5 | 0.2 | P |
| Zinc | 521.1 | 519.3 | 0.4 | P |
| MOLYBDENUM | 500 | 498.6 | 0.3 | P |

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22817-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | 39.3 | 39.8 | 1.2 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 18.4 | 18.1 | 1.6 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 9.4 | 9.5 | 1.0 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

AS GPP 9-10-09 52 GR 4.9

22817-1 3.5
22817-1 3.5
22817-1 3.5
22817-1 3.5
22817-1 3.5

F-763

DUPMSMSD

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL

Contract: BEALE AFB

Matrix (soil/water):

Reference No: 22848-1

Units (ug/l or mg/kg dry weight): ug/L

| Analyte | MS | MSD | % RPD | M |
|------------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic - | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 17.3 | 17.1 | 0.6 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 9.2 | 9.8 | 6.4 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

Pb-GF-4-17-81
 22848-1
 22849-1
 22849-1, 24.5

Se-GF-4-17-81
 22848-1
 22849-1

F-764

DUPHSHSD

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22884-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 2.08 | 2.12 | 1.9 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

4-11-87
22884-1
22884-1,3-5

F-765

DUPLICATE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL

Contract: BEALE AFB

Matrix (soil/water): WATER

Reference No: 22890-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2126 | 2108 | 0.8 | P |
| Antimony | 403.8 | 402.0 | 0.4 | P |
| -Arsenic | 2133 | 2133 | 0.0 | P |
| Barium | 2182 | 2169 | 0.6 | P |
| Beryllium | 53.8 | 53.6 | 0.4 | P |
| Cadmium | 44.6 | 45.8 | 2.6 | P |
| Calcium | 25820 | 25910 | 0.4 | P |
| Chromium | 215.2 | 216.9 | 0.5 | P |
| Cobalt | 531.7 | 530.6 | 0.2 | P |
| Copper | 262.8 | 262.3 | 0.2 | P |
| Iron | 1062 | 1061 | 0.0 | P |
| Lead | 525.8 | 528.2 | 0.5 | P |
| Magnesium | 14500 | 14480 | 1.4 | P |
| Manganese | 502.9 | 501.2 | 0.3 | P |
| Mercury | | | | NR |
| Nickel | 532.4 | 531.9 | 0.1 | P |
| Potassium | 6640 | 7124 | 7.0 | P |
| Selenium | 2067 | 2076 | 0.4 | P |
| Silver | 54.0 | 55.6 | 2.9 | P |
| Sodium | 27650 | 27610 | 0.1 | P |
| Thallium | 2143 | 2141 | 0.1 | P |
| Vanadium | 528.7 | 526.9 | 0.3 | P |
| Zinc | 533.7 | 530.7 | 0.6 | P |
| MOLYBDENUM | 502.6 | 502.5 | 0.0 | P |

ICP 7-20-81

22890-1

22891-1,2,3

22892-1

22893-1,2

22894-1,2,3-6

DUPLICATE

F-766

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH₂M 14.11 Contract: Beale AFB

Matrix (soil/water): water Reference No: 22890-1

Units (ug/l or mg/kg dry weight): ug/l

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | 39.2 | 39.3 | 0.2 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 22.4 | 22.6 | 1.0 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 2.4 | 2.3 | 6.0 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 8.3 | 8.2 | 1.2 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |

4-20-89 22890-1 22891-1,2 22892-1 22893-1 22894-1 22895-1 22896-1 22897-1 22898-1 22899-1 22900-1 22901-1 22902-1 22903-1 22904-1 22905-1 22906-1 22907-1 22908-1 22909-1 22910-1 22911-1 22912-1 22913-1 22914-1 22915-1 22916-1 22917-1 22918-1 22919-1 22920-1 22921-1 22922-1 22923-1 22924-1 22925-1 22926-1 22927-1 22928-1 22929-1 22930-1 22931-1 22932-1 22933-1 22934-1 22935-1 22936-1 22937-1 22938-1 22939-1 22940-1 22941-1 22942-1 22943-1 22944-1 22945-1 22946-1 22947-1 22948-1 22949-1 22950-1 22951-1 22952-1 22953-1 22954-1 22955-1 22956-1 22957-1 22958-1 22959-1 22960-1 22961-1 22962-1 22963-1 22964-1 22965-1 22966-1 22967-1 22968-1 22969-1 22970-1 22971-1 22972-1 22973-1 22974-1 22975-1 22976-1 22977-1 22978-1 22979-1 22980-1 22981-1 22982-1 22983-1 22984-1 22985-1 22986-1 22987-1 22988-1 22989-1 22990-1 22991-1 22992-1 22993-1 22994-1 22995-1 22996-1 22997-1 22998-1 22999-1 23000-1

F-767

5-20-89 22890-1 22891-1 22892-1 22893-1 22894-1 22895-1 22896-1 22897-1 22898-1 22899-1 22900-1 22901-1 22902-1 22903-1 22904-1 22905-1 22906-1 22907-1 22908-1 22909-1 22910-1 22911-1 22912-1 22913-1 22914-1 22915-1 22916-1 22917-1 22918-1 22919-1 22920-1 22921-1 22922-1 22923-1 22924-1 22925-1 22926-1 22927-1 22928-1 22929-1 22930-1 22931-1 22932-1 22933-1 22934-1 22935-1 22936-1 22937-1 22938-1 22939-1 22940-1 22941-1 22942-1 22943-1 22944-1 22945-1 22946-1 22947-1 22948-1 22949-1 22950-1 22951-1 22952-1 22953-1 22954-1 22955-1 22956-1 22957-1 22958-1 22959-1 22960-1 22961-1 22962-1 22963-1 22964-1 22965-1 22966-1 22967-1 22968-1 22969-1 22970-1 22971-1 22972-1 22973-1 22974-1 22975-1 22976-1 22977-1 22978-1 22979-1 22980-1 22981-1 22982-1 22983-1 22984-1 22985-1 22986-1 22987-1 22988-1 22989-1 22990-1 22991-1 22992-1 22993-1 22994-1 22995-1 22996-1 22997-1 22998-1 22999-1 23000-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHAM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22890-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | 41.4 | 41.5 | 0.2 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

As of 4-21-89
22891-3

F-768

DUPMSMD

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22983-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2121 | 2124 | 0.1 | P |
| Antimony | 409.8 | 418.9 | 2.2 | P |
| -Arsenic | 2078 | 2092 | 0.7 | P |
| Barium | 2105 | 2110 | 0.2 | P |
| Beryllium | 52.4 | 53.0 | 1.1 | P |
| Cadmium | 44.0 | 44.7 | 1.6 | P |
| Calcium | 33640 | 34070 | 1.2 | P |
| Chromium | 210.8 | 213.3 | 1.2 | P |
| Cobalt | 506.5 | 514.2 | 1.5 | P |
| Copper | 254.6 | 256.8 | 0.9 | P |
| Iron | 1233 | 1256 | 1.8 | P |
| Lead | 519.1 | 530.8 | 2.2 | P |
| Magnesium | 18630 | 18690 | 0.3 | P |
| Manganese | 583.7 | 588.9 | 0.9 | P |
| Mercury | | | | NR |
| Nickel | 537.4 | 547.3 | 1.8 | P |
| Potassium | 10770 | 11220 | 4.1 | P |
| Selenium | 2026 | 2063 | 1.8 | P |
| Silver | 50.6 | 52.0 | 2.7 | P |
| Sodium | 38260 | 38190 | 0.2 | P |
| Thallium | 2129 | 2153 | 1.1 | P |
| Vanadium | 497.1 | 502.1 | 1.0 | P |
| Zinc | 534.6 | 547.5 | 2.4 | P |
| MOLYBDENUM | 480.7 | 486.1 | 1.1 | P |

ICP 4-18-89
22983-1
22984-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 22915-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2054 | 2067 | 0.6 | P |
| Antimony | 414.4 | 407.4 | 1.7 | P |
| -Arsenic | 2071 | 2051 | 1.0 | P |
| Barium | 1970 | 2009 | 1.5 | P |
| Beryllium | 51.2 | 51.5 | 0.6 | P |
| Cadmium | 48.0 | 47.4 | 1.3 | P |
| Calcium | 15990 | 16040 | 0.3 | P |
| Chromium | 205.4 | 205.9 | 0.2 | P |
| Cobalt | 497.4 | 496.5 | 0.2 | P |
| Copper | 248.3 | 251.6 | 1.3 | P |
| Iron | 1014 | 1079 | 6.2 | P |
| Lead | 504.1 | 478.3 | 5.2 | P |
| Magnesium | 9369 | 9440 | 0.8 | P |
| Manganese | 483.4 | 482.9 | 0.1 | P |
| Mercury | | | | NR |
| Nickel | 519.4 | 527.0 | 1.4 | P |
| Potassium | 6126 | 5725 | 7.0 | P |
| Selenium | 2035 | 2002 | 1.6 | P |
| Silver | 50.3 | 50.0 | 0.6 | P |
| Sodium | 33720 | 34480 | 2.2 | P |
| Thallium | 2118 | 2113 | 0.2 | P |
| Vanadium | 490.4 | 490.5 | 0.0 | P |
| Zinc | 522.7 | 528.3 | 1.1 | P |
| MOLYBDENUM | 491.2 | 496.4 | 1.0 | P |

ECP 4-21-89
22914-1
22915-1

F-770

DUPHMSD

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: S23442-2

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 1.85 | 1.86 | 0.5 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

Hg 6-23-84
23442-2
443-2,3
199-1,4,35
408-1
42-1
23442-1
495-1-23
406-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL

Contract: BEALE AFB

Matrix (soil/water): WATER

Reference No: 923454-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2024 | 2037 | 0.6 | P |
| Antimony | 389.7 | 401.4 | 3.0 | P |
| -Arsenic | 1998 | -2001 | 0.2 | P |
| Barium | 2044 | 2041 | 0.2 | P |
| Beryllium | 52.6 | 52.6 | 0.0 | P |
| Cadmium | 39.2 | 39.5 | 0.8 | P |
| Calcium | 21700 | 21790 | 0.4 | P |
| Chromium | 207.2 | 210.0 | 1.3 | P |
| Cobalt | 501.1 | 502.2 | 0.2 | P |
| Copper | 246.1 | 246.8 | 0.3 | P |
| Iron | 986.5 | 987.3 | 0.1 | P |
| Lead | 525.7 | 524.7 | 0.2 | P |
| Magnesium | 15890 | 15960 | 0.4 | P |
| Manganese | 483.4 | 482.9 | 0.1 | P |
| Mercury | | | | NR |
| Nickel | 511.1 | 515.7 | 0.9 | P |
| Potassium | 5640 | 5869 | 4.0 | P |
| Selenium | 1995 | 1996 | 0.0 | P |
| Silver | 49.5 | 51.0 | 3.0 | P |
| Sodium | 34510 | 34240 | 0.8 | P |
| Thallium | 1866 | 1882 | 0.8 | P |
| Vanadium | 499.4 | 500.7 | 0.3 | P |
| Zinc | 507.7 | 511.9 | 0.8 | P |
| MOLYBDENUM | 497.3 | 498.9 | 0.3 | P |

ICP 6-22-99
25454-1, 2, 3, 5
408-1
409-1
410-1
411-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 523454-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Arsenic | | | | NR |
| Antimony | | | | NR |
| Arsenic | 41.5 | 42.9 | 3.3 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 20.1 | 20.7 | 2.9 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 10.2 | 8.9 | 13.6 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |

Pb-GP 2-26-89
 2357-1
 378-1, 4, 5
 378-2
 413-1

Se-GP 6-26-89
 2379-1, 2, 3, 5
 378-2
 418-1, 3
 442-2
 443-2, 3
 454-1, 2, 3, 5

F-773

6-29-89
 154-1, 2, 3, 5
 42-2
 142-2, 3
 468-1
 469-1

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL

Contract: BEALE AFB

Matrix (soil/water): WATER

Reference No: S23486-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|------------|-------|-------|-------|----|
| Aluminum | 2009 | 2014 | 0.2 | P |
| Antimony | 382.8 | 379.0 | 1.0 | P |
| -Arsenic | 2099 | -2066 | 1.1 | P |
| Barium | 1978 | 1955 | 1.2 | P |
| Beryllium | 51.2 | 50.3 | 1.8 | P |
| Cadmium | 35.8 | 35.6 | 0.6 | P |
| Calcium | 32560 | 32320 | 0.7 | P |
| Chromium | 205.1 | 202.0 | 1.7 | P |
| Cobalt | 502.7 | 492.4 | 2.1 | P |
| Copper | 244.5 | 241.2 | 1.4 | P |
| Iron | 995.5 | 982.6 | 1.3 | P |
| Lead | 507.5 | 487.9 | 3.9 | P |
| Magnesium | 23990 | 23940 | 0.2 | P |
| Manganese | 474-0 | 466.3 | 2.5 | P |
| Mercury | | | | NR |
| Nickel | 516.1 | 501.0 | 3.0 | P |
| Potassium | 7432 | 7364 | 0.9 | P |
| Selenium | 1976 | 1909 | 3.1 | P |
| Silver | 50.6 | 50.2 | 0.8 | P |
| Sodium | 18270 | 18320 | 0.3 | P |
| Thallium | 1901 | 1881 | 1.1 | P |
| Vanadium | 499.0 | 491.4 | 1.5 | P |
| Zinc | 501.6 | 493.4 | 1.6 | P |
| MOLYBDENUM | 495.7 | 485.3 | 2.1 | P |

ICP 6-27-01

23490-1
23500-1-03
23501-1
23502-1-04

F-774

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CH2M HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: S23486-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | 37.6 | 37.0 | 1.6 | F |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | 19.9 | 19.6 | 1.5 | F |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | | | | NR |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | 9.6 | 9.2 | 4.2 | F |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

Pb-GF 7-9-89
25483-1
405-103
106-1
520-103

Se-GF 7-6-89
← SAME F-775

GF-2-7-89
← SAME

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: CHARM HILL Contract: BEALE AFB

Matrix (soil/water): WATER Reference No: 323500-1

Units (ug/l or mg/kg dry weight): UG/L

| Analyte | MS | MSD | % RPD | M |
|-----------|------|------|-------|----|
| Aluminum | | | | NR |
| Antimony | | | | NR |
| -Arsenic | | | | NR |
| Barium | | | | NR |
| Beryllium | | | | NR |
| Cadmium | | | | NR |
| Calcium | | | | NR |
| Chromium | | | | NR |
| Cobalt | | | | NR |
| Copper | | | | NR |
| Iron | | | | NR |
| Lead | | | | NR |
| Magnesium | | | | NR |
| Manganese | | | | NR |
| Mercury | 1.53 | 1.48 | 3.3 | CV |
| Nickel | | | | NR |
| Potassium | | | | NR |
| Selenium | | | | NR |
| Silver | | | | NR |
| Sodium | | | | NR |
| Thallium | | | | NR |
| Vanadium | | | | NR |
| Zinc | | | | NR |
| | | | | |

Hg 7-2-87
23500-1-3
23501-1

F-776

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

0606 S

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB1

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|------------|------------------|----------------------------|---|--------------------|---|------------------|-------|---|----|
| Aluminum | 75-125 | 2001.4000 | - | 200.0000 | U | 2000.0 | 100.1 | - | P |
| Antimony | 75-125 | 490.5000 | - | 300.0000 | U | 500.0 | 98.1 | - | P |
| Arsenic | 75-125 | 2037.3000 | - | 300.0000 | U | 2000.0 | 101.8 | - | P |
| Barium | 75-125 | 2036.2000 | - | 100.0000 | U | 2000.0 | 101.8 | - | P |
| Beryllium | 75-125 | 52.0000 | - | 5.0000 | U | 50.0 | 104.2 | - | P |
| Cadmium | 75-125 | 47.0000 | - | 10.0000 | U | 50.0 | 94.2 | - | P |
| Calcium | | 5008.0000 | - | 44627.7000 | - | | | - | NR |
| Chromium | 75-125 | 201.3000 | - | 30.0000 | U | 200.0 | 100.6 | - | P |
| Cobalt | 75-125 | 496.8000 | - | 40.0000 | U | 500.0 | 99.4 | - | P |
| Copper | 75-125 | 242.2000 | - | 30.0000 | U | 250.0 | 96.9 | - | P |
| Iron | 75-125 | 981.5000 | - | 100.0000 | U | 1000.0 | 98.2 | - | P |
| Lead | 75-125 | 480.0000 | - | 200.0000 | U | 500.0 | 96.0 | - | P |
| Magnesium | | 27361.5000 | - | 22006.8000 | - | | | - | NR |
| Manganese | 75-125 | 567.0000 | - | 76.0000 | - | 500.0 | 98.2 | - | P |
| Molybdenum | 75-125 | 490.6000 | - | 40.0000 | U | 500.0 | 98.1 | - | P |
| Nickel | 75-125 | 509.5000 | - | 40.0000 | U | 500.0 | 101.9 | - | P |
| Potassium | | 5776.8000 | - | 1000.0000 | U | | | - | NR |
| Selenium | 75-125 | 1982.0000 | - | 5.0000 | U | 2000.0 | 99.1 | - | P |
| Silver | 75-125 | 43.2000 | - | 30.0000 | U | 50.0 | 86.4 | - | P |
| Sodium | | 27048.5000 | - | 21452.6000 | - | | | - | NR |
| Thallium | 75-125 | 1796.0000 | - | 500.0000 | U | 2000.0 | 89.8 | - | P |
| Vanadium | 75-125 | 485.5000 | - | 40.0000 | U | 500.0 | 97.1 | - | P |
| Zinc | 75-125 | 503.1000 | - | 20.0000 | U | 500.0 | 100.6 | - | P |

Comments:

EPA SAMPLE NO.

0606 S

SDG No.: BAFB1_

Level (low/med): _____

[illegible]

6
DUPLICATES

EPA SAMPLE NO.

0606 D

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB1

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample: 0

% Solids for Duplicate: 0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|-----------|---------------|------------|---|---------------|---|-----|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 44630.0000 | U | 45290.0000 | U | 1.5 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 22010.0000 | U | 22270.0000 | U | 1.2 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Mercury | | 0.5000 | U | 0.5000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 1000.0000 | U | 1000.0000 | U | | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | | 21450.0000 | U | 21710.0000 | U | 1.2 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |

FORM VI - IN

7/87

F-779

EPA SAMPLE NO.

Contract: BAFB_____

D

SDG No.: BAFB1_

Level (low/med): _____

% Solids for Duplicate: 0.0

[illegible]

7/87

F-780

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

Lab Name: CH2MHILL

Contract: BAFB

0631 S

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB2

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control
Limit
%R | Spiked Sample
Result (SSR) C | Sample
Result (SR) C | Spike
Added (SA) | %R | Q | M |
|------------|------------------------|---------------------------------|-------------------------|---------------------|-------|---|----|
| Aluminum | 75-125 | 1959.4000 | 200.0000 U | 2000.0 | 98.0 | | P |
| Antimony | 75-125 | 453.9000 | 300.0000 U | 500.0 | 90.8 | | P |
| Arsenic | 75-125 | 1973.1000 | 300.0000 U | 2000.0 | 98.7 | | P |
| Barium | 75-125 | 1959.8000 | 100.0000 U | 2000.0 | 98.0 | | P |
| Beryllium | 75-125 | 50.6000 | 5.0000 U | 50.0 | 101.2 | | P |
| Cadmium | 75-125 | 50.5000 | 10.0000 U | 50.0 | 101.0 | | P |
| Calcium | | 22078.8000 | 17524.2000 | | | | NR |
| Chromium | 75-125 | 201.4000 | 30.0000 U | 200.0 | 100.7 | | P |
| Cobalt | 75-125 | 496.1000 | 40.0000 U | 500.0 | 99.2 | | P |
| Copper | 75-125 | 245.6000 | 30.0000 U | 250.0 | 98.2 | | P |
| Iron | 75-125 | 976.8000 | 100.0000 U | 1000.0 | 97.7 | | P |
| Lead | 75-125 | 487.8000 | 200.0000 U | 500.0 | 97.6 | | P |
| Magnesium | | 14810.6000 | 10253.4000 | | | | NR |
| Manganese | 75-125 | 497.1000 | 15.0000 U | 500.0 | 99.4 | | P |
| Molybdenum | 75-125 | 467.3000 | 40.0000 U | 500.0 | 93.5 | | P |
| Nickel | 75-125 | 491.1000 | 40.0000 U | 500.0 | 98.2 | | P |
| Potassium | | 5405.6000 | 1000.0000 U | | | | NR |
| Selenium | 75-125 | 1872.6000 | 400.0000 U | 2000.0 | 93.6 | | P |
| Silver | 75-125 | 46.3000 | 30.0000 U | 50.0 | 92.6 | | P |
| Sodium | | 25648.0000 | 21138.5000 | | | | NR |
| Thallium | 75-125 | 1821.0000 | 500.0000 U | 2000.0 | 91.0 | | P |
| Vanadium | 75-125 | 487.9000 | 40.0000 U | 500.0 | 97.6 | | P |
| Zinc | 75-125 | 496.7000 | 20.0000 U | 500.0 | 99.3 | | P |

Comments:

SAMPLE NO.

Contract: BAFB

0631 S

Case No.: _____

SAS No.: _____

SDG No. : BAFB2

Level (low/med): _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

Comments:

SAMPLE NO.

0631 S

SDG No.: BAFB2_

Level (low/med): _____

[illegible]

6
DUPLICATES

SAMPLE NO.

0631 D

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB2

Matrix (soil/water): WATER

Level (low/med):

‡ Solids for Sample:

‡ Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|-----------|---------------|------------|---|---------------|---|-----|---|----|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 17520.0000 | U | 17440.0000 | U | 0.5 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 10250.0000 | U | 10150.0000 | U | 1.0 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Mercury | | | | | | | | NR |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 1000.0000 | U | 1000.0000 | U | | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | | 21140.0000 | U | 20820.0000 | U | 1.5 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |
| | | | | | | | | |
| | | | | | | | | |

6
DUPLICATES

0631 D

Contract: BAFB_____

Case No.: _____

SAS No.: _____

SDG No.: BAFB2_

Level (low/med): _____

‡ Solids for Sample: 0.0

* Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

FORM VI - IN

7/87

6
DUPLICATES

SAMPLE NO.

0631 D

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No. :

SAS No. : _____

SDG No. : BAFB2

Matrix (soil/water): WATER

Level (low/med):

* Solids for Sample: 0.0

* Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

0639 S

Name: CH2MHILL Contract: BAFB

Lab Code: LRD Case No.: SAS No.: SDG No.: BAFB3

Matrix (soil/water): WATER Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) C | Sample Result (SR) C | Spike Added (SA) | %R | Q | M |
|------------|------------------|------------------------------|----------------------|------------------|-------|---|----|
| Aluminum | 75-125 | 1953.0000 | 200.0000 U | 2000.0 | 97.6 | | P |
| Antimony | 75-125 | 486.0000 | 300.0000 U | 500.0 | 97.2 | | P |
| Arsenic | 75-125 | 1999.0000 | 300.0000 U | 2000.0 | 100.0 | | P |
| Barium | 75-125 | 1952.0000 | 100.0000 U | 2000.0 | 97.6 | | P |
| Beryllium | 75-125 | 49.4000 | 5.0000 U | 50.0 | 98.8 | | P |
| Cadmium | 75-125 | 49.9000 | 10.0000 U | 50.0 | 99.8 | | P |
| Calcium | | 33320.0000 | 28900.0000 | | | | NR |
| Chromium | 75-125 | 196.6000 | 30.0000 U | 200.0 | 98.3 | | P |
| Cobalt | 75-125 | 482.2000 | 40.0000 U | 500.0 | 96.4 | | P |
| Copper | 75-125 | 235.6000 | 30.0000 U | 250.0 | 94.2 | | P |
| Iron | 75-125 | 930.6000 | 100.0000 U | 2000.0 | 93.1 | | P |
| Lead | 75-125 | 493.7000 | 200.0000 U | 500.0 | 98.7 | | P |
| Magnesium | | 16800.0000 | 12110.0000 | | | | NR |
| Manganese | 75-125 | 475.8000 | 15.0000 U | 500.0 | 95.2 | | P |
| Molybdenum | 75-125 | 474.8000 | 40.0000 U | 500.0 | 95.0 | | P |
| Nickel | 75-125 | 488.4000 | 40.0000 U | 500.0 | 97.7 | | P |
| Potassium | | 7133.0000 | 2500.0000 | | | | NR |
| Selenium | 75-125 | 1898.0000 | 400.0000 U | 2000.0 | 94.9 | | P |
| Silver | 75-125 | 47.5000 | 30.0000 U | 50.0 | 95.0 | | P |
| Sodium | | 34320.0000 | 29690.0000 | | | | NR |
| Thallium | 75-125 | 1734.0000 | 500.0000 U | 2000.0 | 86.7 | | P |
| Vanadium | 75-125 | 493.8000 | 40.0000 U | 500.0 | 98.8 | | P |
| Zinc | 75-125 | 483.4000 | 20.0000 U | 500.0 | 96.7 | | P |

Comments:

FORM V (PART 1) - IN

7/87

F-787

SAMPLE NO.

0639 S

SDG No.: BAFB3

Level (low/med): _____

[illegible]

SAMPLE NO.

Contract: BAFB

0639 S

SDG No. : BAFB3

Level (low/med): _____

Concentration Units (ug/L or mg/kg dry weight): UG/L

Comments:

7/87

6
DUPLICATES

SAMPLE NO.

0633

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB3

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample:

% Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|-----------|---------------|------------|---|---------------|---|-----|---|----|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 28900.0000 | | 28690.0000 | | 0.7 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 12110.0000 | | 11970.0000 | | 1.2 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Mercury | | | | | | | | NR |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 2452.0000 | | 2260.0000 | | 8.2 | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | | 29690.0000 | | 29340.0000 | | 1.2 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |
| | | | | | | | | |
| | | | | | | | | |

FORM VI - IN

7/87

F-790

SAMPLE NO.

Contract: BAFB

0639 D

Case No.: _____

SAS No.:

SDG No.: BAFB3

Level (low/med): _____

* Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

7/87

F-791

SAMPLE NO.

Contract: BAFB

0639 D

SDG No.: BAFB3_

Level (low/med): _____

* Solids for Duplicate: 0.0

[illegible]

7/87

F-792

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

Lab Name: CH2MHILL

Contract: BAFB

0660 S

Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB4

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|------------|------------------|----------------------------|---|--------------------|---|------------------|-------|---|----|
| Aluminum | 75-125 | 2035.3000 | | 200.0000 | U | 2000.0 | 101.8 | | P |
| Antimony | 75-125 | 478.1000 | | 300.0000 | U | 500.0 | 95.6 | | P |
| Arsenic | 75-125 | 2009.2000 | | 300.0000 | U | 2000.0 | 100.5 | | P |
| Barium | 75-125 | 2064.8000 | | 100.0000 | U | 2000.0 | 103.2 | | P |
| Beryllium | 75-125 | 51.7000 | | 5.0000 | U | 50.0 | 103.4 | | P |
| Cadmium | 75-125 | 42.2000 | | 10.0000 | U | 50.0 | 84.4 | | P |
| Calcium | | 33742.9000 | | 28956.1000 | | | | | NR |
| Chromium | 75-125 | 206.9000 | | 30.0000 | U | 200.0 | 103.4 | | P |
| Cobalt | 75-125 | 505.1000 | | 40.0000 | U | 500.0 | 101.0 | | P |
| Copper | 75-125 | 236.4000 | | 30.0000 | U | 250.0 | 94.6 | | P |
| Iron | 75-125 | 973.4000 | | 100.0000 | U | 1000.0 | 97.3 | | P |
| Lead | 75-125 | 542.7000 | | 200.0000 | U | 500.0 | 108.5 | | P |
| Magnesium | | 24483.6000 | | 19150.2000 | | | | | NR |
| Manganese | 75-125 | 476.1000 | | 15.0000 | U | 500.0 | 95.2 | | P |
| Molybdenum | 75-125 | 486.7000 | | 40.0000 | U | 500.0 | 97.3 | | P |
| Nickel | 75-125 | 517.4000 | | 40.0000 | U | 500.0 | 103.5 | | P |
| Potassium | | 5526.6000 | | 1000.0000 | U | | | | NR |
| Selenium | 75-125 | 1975.7000 | | 400.0000 | U | 2000.0 | 98.8 | | P |
| Silver | 75-125 | 46.7000 | | 30.0000 | U | 50.0 | 93.4 | | P |
| Sodium | | 20148.3000 | | 14389.4000 | | | | | NR |
| Thallium | 75-125 | 1974.2000 | | 500.0000 | U | 2000.0 | 98.7 | | P |
| Vanadium | 75-125 | 490.2000 | | 40.0000 | U | 500.0 | 98.0 | | P |
| Zinc | 75-125 | 497.2000 | | 20.0000 | U | 500.0 | 99.4 | | P |

Comments:

EPA SAMPLE NO.

Contract: BAFB

0660 A

SDG No. : BAFB4

Level (low/med): _____

[illegible]

Comments:

7/87

6
DUPLICATES

SAMPLE NO.

0660 D

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB4

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|-----|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 28956.1000 | U | 28736.9000 | U | 0.8 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 19150.2000 | U | 18994.0000 | U | 0.8 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 1000.0000 | U | 1000.0000 | U | | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | | 14389.4000 | U | 14129.8000 | U | 1.8 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |

SAMPLE NO.

0660 D

SDG No.: BAFB4_

Level (low/med): _____

* Solids for Duplicate: 0.0

[illegible]

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

680 S

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB5

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|------------|------------------|----------------------------|---|--------------------|---|------------------|-------|---|----|
| Aluminum | 75-125 | 2210.8000 | - | 200.0000 | U | 2000.0 | 110.5 | - | P |
| Antimony | 75-125 | 506.2000 | - | 300.0000 | U | 500.0 | 101.2 | - | P |
| Arsenic | 75-125 | 2070.3000 | - | 300.0000 | U | 2000.0 | 103.5 | - | P |
| Barium | 75-125 | 2163.3000 | - | 103.2000 | - | 2000.0 | 103.0 | - | P |
| Beryllium | 75-125 | 52.9000 | - | 5.0000 | U | 50.0 | 105.8 | - | P |
| Cadmium | 75-125 | 55.7000 | - | 10.0000 | U | 50.0 | 111.4 | - | P |
| Calcium | | 16793.9000 | - | 11352.9000 | - | | | - | NR |
| Chromium | 75-125 | 229.0000 | - | 30.0000 | U | 200.0 | 114.5 | - | P |
| Cobalt | 75-125 | 536.6000 | - | 40.0000 | U | 500.0 | 107.3 | - | P |
| Copper | 75-125 | 242.3000 | - | 30.0000 | U | 250.0 | 96.9 | - | P |
| Iron | 75-125 | 1132.7000 | - | 100.0000 | U | 1000.0 | 113.3 | - | P |
| Lead | 75-125 | 505.5000 | - | 200.0000 | U | 500.0 | 101.1 | - | P |
| Magnesium | | 12445.7000 | - | 7283.3000 | - | | | - | NR |
| Manganese | 75-125 | 544.7000 | - | 18.3000 | - | 500.0 | 105.3 | - | P |
| Molybdenum | 75-125 | 502.8000 | - | 40.0000 | U | 500.0 | 100.6 | - | P |
| Nickel | 75-125 | 510.9000 | - | 40.0000 | U | 500.0 | 102.2 | - | P |
| Potassium | | 6034.5000 | - | 1000.0000 | U | | | - | NR |
| Selenium | 75-125 | 2047.0000 | - | 400.0000 | U | 2000.0 | 102.4 | - | P |
| Silver | 75-125 | 51.3000 | - | 30.0000 | U | 50.0 | 102.6 | - | P |
| Sodium | | 17371.0000 | - | 11677.0000 | - | | | - | NR |
| Thallium | 75-125 | 1844.3000 | - | 500.0000 | U | 2000.0 | 92.2 | - | P |
| Vanadium | 75-125 | 515.3000 | - | 40.0000 | U | 500.0 | 103.1 | - | P |
| Zinc | 75-125 | 555.8000 | - | 40.4000 | - | 500.0 | 103.1 | - | P |

Comments:

EPA SAMPLE NO.

Contract: BAFB

0680 S

SDG No.: BAFR5

Level (low/med): _____

[illegible]

Comments:

6
DUPLICATES

EPA SAMPLE NO.

0680 D

Lab Name: CH2MHILL Contract: EAFB

Lab Code: LRD Case No.: SAS No.: SDG No.: BAFB5

Matrix (soil/water): WATER Level (low/med):

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|-------|---|---|
| Aluminum | 200.0 | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | 60.0 | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | 10.0 | 300.0000 | U | 300.0000 | U | | | P |
| Barium | 100.0 | 103.2000 | U | 100.0000 | U | 200.0 | | P |
| Beryllium | 5.0 | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | 5.0 | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | 5000.0 | 11352.9000 | U | 11262.8000 | U | 0.8 | | P |
| Chromium | 10.0 | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | 50.0 | 40.0000 | U | 40.0000 | U | | | P |
| Copper | 25.0 | 30.0000 | U | 30.0000 | U | | | P |
| Iron | 100.0 | 100.0000 | U | 100.0000 | U | | | P |
| Lead | 5.0 | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | 5000.0 | 7283.3000 | U | 7191.5000 | U | 1.3 | | P |
| Manganese | 15.0 | 18.3000 | U | 18.2000 | U | 0.5 | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | 40.0 | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | 5000.0 | 1000.0000 | U | 1000.0000 | U | | | P |
| Selenium | 5.0 | 400.0000 | U | 400.0000 | U | | | P |
| Silver | 10.0 | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | 5000.0 | 11677.3000 | U | 11466.1000 | U | 1.8 | | P |
| Thallium | 10.0 | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | 50.0 | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | 20.0 | 40.4000 | U | 38.3000 | U | 5.3 | | P |

0680 D

SDG No.: BAFB5

Level (low/med):

* Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

3
BLANKS

Contract: BAFB

Case No. : _____

SAS No. : _____

SDG No.: BAFB5_

Preparation Black Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

[illegible]

FORM III - IN

7/87

1 - 802

3
BLANKS

Contract: BAFB

Case No.: _____

SDG No.: BAFB5

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

FORM III - IN

7/87

F-803

3
BLANKS

Lab Name: CH2MHILL_____

Contract: BAFB_____

Lab Code: LRD_____

Case No.: _____

SAS No.: _____

SDG No.: BAFB5_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_____

| Analyte | Initial
Calib.
Blank
(ug/L) | C | Continuing Calibration
Blank (ug/L) | | | | | | Prepa-
ration
Blank | C | M |
|------------|--------------------------------------|---|----------------------------------------|---|--------|---|--------|---|---------------------------|---|---|
| | | | 1 | C | 2 | C | 3 | C | | | |
| Aluminum | 200.0 | U | 200.0 | U | 200.0 | U | 200.0 | U | 200.0 | U | P |
| Antimony | 300.0 | U | 300.0 | U | 300.0 | U | 300.0 | U | 300.0 | U | P |
| Arsenic | 300.0 | U | 300.0 | U | 300.0 | U | 300.0 | U | 300.0 | U | P |
| Barium | 100.0 | U | 100.0 | U | 100.0 | U | 100.0 | U | 100.0 | U | P |
| Beryllium | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U | P |
| Cadmium | 10.0 | U | 10.0 | U | 10.0 | U | 10.0 | U | 10.0 | U | P |
| Calcium | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | P |
| Chromium | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | P |
| Cobalt | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | P |
| Copper | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | P |
| Iron | 100.0 | U | 100.0 | U | 100.0 | U | 100.0 | U | 100.0 | U | P |
| Lead | 200.0 | U | 200.0 | U | 200.0 | U | 200.0 | U | 200.0 | U | P |
| Magnesium | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | P |
| Manganese | 15.0 | U | 15.0 | U | 15.0 | U | 15.0 | U | 15.0 | U | P |
| Molybdenum | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | P |
| Nickel | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | P |
| Potassium | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | P |
| Selenium | 400.0 | U | 400.0 | U | 400.0 | U | 400.0 | U | 400.0 | U | P |
| Silver | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | 30.0 | U | P |
| Sodium | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | 1000.0 | U | P |
| Thallium | 500.0 | U | 500.0 | U | 500.0 | U | 500.0 | U | 500.0 | U | P |
| Vanadium | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | 40.0 | U | P |
| Zinc | 20.0 | U | 20.0 | U | 20.0 | U | 20.0 | U | 20.0 | U | P |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

FORM III - IN

7/87

F-804

6
DUPLICATES

SAMPLE NO.

0700 D

Lab Name: CH2MHILL

Contract: BAFB

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB6

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|-----|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | 5000.0 | 14868.7000 | | 14807.1000 | | 0.4 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 4747.9000 | | 4726.2000 | | 0.5 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 1964.4000 | | 1953.5000 | | 0.6 | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | 5000.0 | 26981.1000 | | 26854.2000 | | 0.5 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |

FORM VI - IN

7/87

F-805

SAMPLE NO.

Contract: BAFB

0700 D

SDG No.: BAFB6

Level (low/med):

‡ Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

7/87

F-806

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

Lab Name: CH2MHILL

Contract: BAFB

0700 S

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB6

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) C | Sample Result (SR) C | Spike Added (SA) | %R | Q | M |
|------------|------------------|------------------------------|----------------------|------------------|-------|---|----|
| Aluminum | 75-125 | 2024.0000 | 200.0000 U | 2000.0 | 101.2 | | P |
| Antimony | 75-125 | 457.4000 | 300.0000 U | 500.0 | 91.5 | | P |
| Arsenic | 75-125 | 1987.0000 | 300.0000 U | 2000.0 | 99.4 | | P |
| Barium | 75-125 | 2046.3000 | 100.0000 U | 2000.0 | 102.3 | | P |
| Beryllium | 75-125 | 52.0000 | 5.0000 U | 50.0 | 104.0 | | P |
| Cadmium | 75-125 | 39.4000 | 10.0000 U | 50.0 | 78.8 | | P |
| Calcium | | 19371.2000 | 14868.7000 | | | | NR |
| Chromium | 75-125 | 217.0000 | 30.0000 U | 200.0 | 108.5 | | P |
| Cobalt | 75-125 | 517.1000 | 40.0000 U | 500.0 | 103.4 | | P |
| Copper | 75-125 | 238.4000 | 30.0000 U | 250.0 | 95.4 | | P |
| Iron | 75-125 | 1159.4000 | 100.0000 U | 1000.0 | 115.9 | | P |
| Lead | 75-125 | 524.3000 | 200.0000 U | 500.0 | 104.9 | | P |
| Magnesium | | 9505.8000 | 4747.9000 | | | | NR |
| Manganese | 75-125 | 468.2000 | 15.0000 U | 500.0 | 93.6 | | P |
| Molybdenum | 75-125 | 472.8000 | 40.0000 U | 500.0 | 94.6 | | P |
| Nickel | 75-125 | 499.7000 | 40.0000 U | 500.0 | 99.9 | | P |
| Potassium | | 7099.3000 | 1964.4000 | | | | NR |
| Selenium | 75-125 | 1944.2000 | 400.0000 U | 2000.0 | 97.2 | | P |
| Silver | 75-125 | 48.8000 | 30.0000 U | 50.0 | 97.6 | | P |
| Sodium | | 32385.9000 | 26981.1000 | | | | NR |
| Thallium | 75-125 | 1921.3000 | 500.0000 U | 2000.0 | 96.1 | | P |
| Vanadium | 75-125 | 508.3000 | 40.0000 U | 500.0 | 101.7 | | P |
| Zinc | 75-125 | 500.2000 | 20.0000 U | 500.0 | 100.0 | | P |

Comments:

SAMPLE NO.

Contract: BAFB

0700 S

SDG No.: BAFB6

Level (low/med): _____

[illegible]

Comments:

6
DUPLICATES

SAMPLE NO.

Lab Name: CH2MHILL

Contract: BAFB

0700 D

Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|-----|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | 5000.0 | 14868.7000 | | 14807.1000 | | 0.4 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | | 4747.9000 | | 4726.2000 | | 0.5 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | | 1964.4000 | | 1953.5000 | | 0.6 | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | 5000.0 | 26981.1000 | | 26854.2000 | | 0.5 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |

FORM VI - IN

7/87

F-809

SAMPLE NO.

Contract: BAFB

C700 D

SDG No.: BAFB6

Level (low/med): _____

* Solids for Duplicate: 0.0

[illegible]

7/87

F-810

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

Name: CH2MHILL

Contract: BAFB

0722 S

Lab Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB7

Matrix (soil/water): WATER

Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control
Limit
%R | Spiked Sample
Result (SSR) | C | Sample
Result (SR) | C | Spike
Added (SA) | %R | Q | M |
|------------|------------------------|-------------------------------|---|-----------------------|---|---------------------|-------|---|----|
| Aluminum | 75-125 | 2083.1000 | - | 200.0000 | U | 2000.0 | 104.2 | - | P |
| Antimony | 75-125 | 480.2000 | - | 300.0000 | U | 500.0 | 96.0 | - | P |
| Arsenic | 75-125 | 1946.9000 | - | 300.0000 | U | 2000.0 | 97.3 | - | P |
| Barium | 75-125 | 1997.9000 | - | 100.0000 | U | 2000.0 | 99.9 | - | P |
| Beryllium | 75-125 | 50.2000 | - | 5.0000 | U | 50.0 | 100.4 | - | P |
| Cadmium | 75-125 | 49.2000 | - | 10.0000 | U | 50.0 | 98.4 | - | P |
| Calcium | | 34927.2000 | - | 30782.3000 | - | | | - | NR |
| Chromium | 75-125 | 212.1000 | - | 30.0000 | U | 200.0 | 106.0 | - | P |
| Cobalt | 75-125 | 501.7000 | - | 40.0000 | U | 500.0 | 100.3 | - | P |
| Copper | 75-125 | 247.0000 | - | 30.0000 | U | 250.0 | 98.8 | - | P |
| Iron | 75-125 | 1050.2000 | - | 100.0000 | U | 1000.0 | 105.0 | - | P |
| Lead | 75-125 | 511.8000 | - | 200.0000 | U | 500.0 | 102.4 | - | P |
| Magnesium | | 23600.3000 | - | 19347.2000 | - | | | - | NR |
| Manganese | 75-125 | 485.2000 | - | 15.0000 | U | 500.0 | 97.0 | - | P |
| Molybdenum | 75-125 | 477.0000 | - | 40.0000 | U | 500.0 | 95.4 | - | P |
| Nickel | 75-125 | 494.2000 | - | 40.0000 | U | 500.0 | 98.8 | - | P |
| Potassium | | 6892.6000 | - | 1562.6000 | - | | | - | NR |
| Selenium | 75-125 | 1973.8000 | - | 400.0000 | U | 2000.0 | 98.7 | - | P |
| Silver | 75-125 | 48.4000 | - | 30.0000 | U | 50.0 | 96.8 | - | P |
| Sodium | | 18622.3000 | - | 13830.2000 | - | | | - | NR |
| Thallium | 75-125 | 1829.7000 | - | 500.0000 | U | 2000.0 | 91.5 | - | P |
| Vanadium | 75-125 | 503.1000 | - | 40.0000 | U | 500.0 | 100.6 | - | P |
| Zinc | 75-125 | 508.4000 | - | 20.0000 | U | 500.0 | 101.7 | - | P |

Comments:

SAMPLE NO.

Contract: BAFB_____

0722 S

SDG No.: BAFB7_

Level (low/med): _____

[illegible]

Comments:

6
DUPLICATES

SAMPLE NO.

Lab Name: CH2MHILL_____

Contract: BAFB_____

0722 D

Lab Code: LRD_____

Case No.: _____

SAS No.: _____

SDG No.: BAFB7_____

Matrix (soil/water): WATER

Level (low/med): _____

% Solids for Sample: __0.0

% Solids for Duplicate: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|------|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 30782.3000 | | 30942.1000 | | 0.5 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | 5000.0 | 19347.2000 | | 19337.8000 | | 0.0 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | 5000.0 | 1562.6000 | | 1778.5000 | | 12.9 | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | 5000.0 | 13830.2000 | | 13766.8000 | | 0.5 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |
| | | | | | | | | |
| | | | | | | | | |

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

0722 S

Lab Name: CH2MHILL Contract: BAFB

Lab Code: LRD Case No.: SAS No.: SDG No.: BAFB7

Matrix (soil/water): WATER Level (low/med):

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit %R | Spiked Sample Result (SSR) C | Sample Result (SR) C | Spike Added (SA) | %R | Q | M |
|------------|------------------|------------------------------|----------------------|------------------|-------|----|----|
| Aluminum | 75-125 | 2083.1000 | 200.0000 U | 2000.0 | 104.2 | P | P |
| Antimony | 75-125 | 480.2000 | 300.0000 U | 500.0 | 96.0 | P | P |
| Arsenic | 75-125 | 1946.9000 | 300.0000 U | 2000.0 | 97.3 | P | P |
| Barium | 75-125 | 1997.9000 | 100.0000 U | 2000.0 | 99.9 | P | P |
| Beryllium | 75-125 | 50.2000 | 5.0000 U | 50.0 | 100.4 | P | P |
| Cadmium | 75-125 | 49.2000 | 10.0000 U | 50.0 | 98.4 | P | P |
| Calcium | | 34927.2000 | 30782.3000 | | | NR | NR |
| Chromium | 75-125 | 212.1000 | 30.0000 U | 200.0 | 106.0 | P | P |
| Cobalt | 75-125 | 501.7000 | 40.0000 U | 500.0 | 100.3 | P | P |
| Copper | 75-125 | 247.0000 | 30.0000 U | 250.0 | 98.8 | P | P |
| Iron | 75-125 | 1050.2000 | 100.0000 U | 1000.0 | 105.0 | P | P |
| Lead | 75-125 | 511.8000 | 200.0000 U | 500.0 | 102.4 | P | P |
| Magnesium | | 23600.3000 | 19347.2000 | | | NR | NR |
| Manganese | 75-125 | 485.2000 | 15.0000 U | 500.0 | 97.0 | P | P |
| Molybdenum | 75-125 | 477.0000 | 40.0000 U | 500.0 | 95.4 | P | P |
| Nickel | 75-125 | 494.2000 | 40.0000 U | 500.0 | 98.8 | P | P |
| Potassium | | 6892.6000 | 1562.6000 | | | NR | NR |
| Selenium | 75-125 | 1973.8000 | 400.0000 U | 2000.0 | 98.7 | P | P |
| Silver | 75-125 | 48.4000 | 30.0000 U | 50.0 | 96.8 | P | P |
| Sodium | | 18622.3000 | 13830.2000 | | | NR | NR |
| Thallium | 75-125 | 1829.7000 | 500.0000 U | 2000.0 | 91.5 | P | P |
| Vanadium | 75-125 | 503.1000 | 40.0000 U | 500.0 | 100.6 | P | P |
| Zinc | 75-125 | 508.4000 | 20.0000 U | 500.0 | 101.7 | P | P |

Comments:

SAMPLE NO.

0722 S

SDG No.: BAFB7_

Level (low/med): _____

[illegible]

7/87

516.06H

6
DUPLICATES

SAMPLE NO.

Lab Name: CH2MHILL

Contract: BAFB

0722 D

Code: LRD

Case No.:

SAS No.:

SDG No.: BAFB7

Matrix (soil/water): WATER

Level (low/med):

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|------------|---------------|------------|---|---------------|---|------|---|---|
| Aluminum | | 200.0000 | U | 200.0000 | U | | | P |
| Antimony | | 300.0000 | U | 300.0000 | U | | | P |
| Arsenic | | 300.0000 | U | 300.0000 | U | | | P |
| Barium | | 100.0000 | U | 100.0000 | U | | | P |
| Beryllium | | 5.0000 | U | 5.0000 | U | | | P |
| Cadmium | | 10.0000 | U | 10.0000 | U | | | P |
| Calcium | | 30782.3000 | U | 30942.1000 | U | 0.5 | | P |
| Chromium | | 30.0000 | U | 30.0000 | U | | | P |
| Cobalt | | 40.0000 | U | 40.0000 | U | | | P |
| Copper | | 30.0000 | U | 30.0000 | U | | | P |
| Iron | | 100.0000 | U | 100.0000 | U | | | P |
| Lead | | 200.0000 | U | 200.0000 | U | | | P |
| Magnesium | 5000.0 | 19347.2000 | U | 19337.8000 | U | 0.0 | | P |
| Manganese | | 15.0000 | U | 15.0000 | U | | | P |
| Molybdenum | | 40.0000 | U | 40.0000 | U | | | P |
| Nickel | | 40.0000 | U | 40.0000 | U | | | P |
| Potassium | 5000.0 | 1562.6000 | U | 1778.5000 | U | 12.9 | | P |
| Selenium | | 400.0000 | U | 400.0000 | U | | | P |
| Silver | | 30.0000 | U | 30.0000 | U | | | P |
| Sodium | 5000.0 | 13830.2000 | U | 13766.8000 | U | 0.5 | | P |
| Thallium | | 500.0000 | U | 500.0000 | U | | | P |
| Vanadium | | 40.0000 | U | 40.0000 | U | | | P |
| Zinc | | 20.0000 | U | 20.0000 | U | | | P |

FORM VI - IN

7/87

F-817

SAMPLE NO.

Contract: BAFB

0722 D

SDG No.: BAFB7

Level (low/med):

* Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

FORM VI - IN

7/87

F-818

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Pesticides and PCBs (SW8080)

3F
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH₂M HILL ENVIRONMENTAL LAB Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix Spike - EPA Sample No.: _____ Level: (low/med) _____

21805-2

| COMPOUND | SPIKE
ADDED
(ug/Kg) | SAMPLE
CONCENTRATION
(ug/Kg) | MS
CONCENTRATION
(ug/Kg) | MS
%
REC # | QC
LIMITS
REC. |
|------------|---------------------------|------------------------------------|--------------------------------|------------------|----------------------|
| Lindane | 0.0067 | <0.01 | 0.0069 | 103 | 46-127 |
| Heptachlor | 0.0067 | <0.01 | 0.0070 | 104 | 35-130 |
| Aldrin | 0.0067 | <0.01 | 0.0067 | 100 | 34-132 |
| Dieldrin | 0.0167 | <0.02 | 0.0172 | 103 | 31-134 |
| Endrin | 0.0167 | <0.02 | 0.0217 | 130 | 42-139 |
| 4,4' DDT | 0.0167 | <0.02 | 0.0174 | 104 | 23-134 |

| COMPOUND | SPIKE
ADDED
(ug/Kg) | MSD
CONCENTRATION
(ug/Kg) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD | REC. |
|------------|---------------------------|---------------------------------|-------------------|------------|------------------|--------|
| Lindane | 0.0067 | 0.0069 | 103 | 0 | 50 | 46-127 |
| Heptachlor | 0.0067 | 0.0063 | 94 | 10.1 | 31 | 35-130 |
| Aldrin | 0.0067 | 0.0066 | 99 | 10 | 43 | 34-132 |
| Dieldrin | 0.0167 | 0.0171 | 102 | 0.9 | 38 | 31-134 |
| Endrin | 0.0167 | 0.0210 | 126 | 3.1 | 45 | 42-139 |
| 4,4' DDT | 0.0167 | 0.0168 | 101 | 2.9 | 50 | 23-134 |

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
 Spike Recovery: 0 out of 12 outside limits

COMMENTS: DB-17 COLUMN

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Herbicides (SW8150)

HERBICIDE SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No. 12735 SAS No. _____ SDG No.: _____

Matrix Spike - EPA Sample No.: 12735001

| COMPOUND | SPIKE
ADDED
(UG/KG) | SAMPLE
CONC
(UG/KG) | MS
CONC
(UG/KG) | MS
%
REC |
|----------|---------------------------|---------------------------|-----------------------|----------------|
| 2,4-D | 50 | 0 | 46.50 | 93 |
| Silvex | 10 | 0 | 8.54 | 85 |
| 2,4,5-T | 10 | 0 | 9.00 | 90 |

| COMPOUND | SPIKE
ADDED
(UG/KG) | MSD
CONC
(UG/KG) | MSD
%
REC | %
RPD |
|----------|---------------------------|------------------------|-----------------|----------|
| 2,4-D | 50 | 45.26 | 90 | 3 |
| Silvex | 10 | 9.10 | 91 | -7 |
| 2,4,5-T | 10 | 9.78 | 98 | -8 |

Comments:

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Purgeable Halocarbons (SW8010)

Purgeable Aromatics (SW8020)

MATRIX SPIKE RESULTS

Laboratory No.: 22644

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 3-23-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloroethane | 20 | < 1 | 27.6 | 29.1 | 5.29 | 141.75 |
| Bromoethane | 20 | < 1 | 25.4 | 22.4 | 12.55 | 119.50 |
| Dichlorodifluoroethane | 20 | < 1 | 20.9 | 21.8 | 4.22 | 106.75 |
| Vinyl chloride | 20 | < 1 | 20.9 | 21.8 | 4.22 | 106.75 |
| Chloroethane | 20 | < 1 | 22.7 | 23.3 | 2.61 | 115.00 |
| Methylene chloride | 20 | 15 | 64.6 | 56.2 | 13.91 | 227.00 |
| Trichlorofluoroethane | 20 | < 1 | 28.1 | 28.3 | 0.71 | 141.00 |
| 1,1-Dichloroethene | 20 | < 1 | 27.2 | 27.7 | 1.02 | 137.25 |
| 1,1-Dichloroethane | 20 | < 1 | 26.6 | 26.2 | 1.52 | 132.00 |
| trans-1,2-Dichloroethene | 20 | < 1 | 25.6 | 25.5 | 0.39 | 127.75 |
| Chloroform | 20 | < 1 | 26.1 | 25.8 | 1.16 | 129.75 |
| 1,2-Dichloroethane | 20 | < 1 | 24.4 | 24.4 | 0.00 | 122.00 |
| 1,1,1-Trichloroethane | 20 | < 1 | 25.2 | 26.3 | 4.27 | 120.75 |
| Carbon Tetrachloride | 20 | < 1 | 24.1 | 24.8 | 2.86 | 122.25 |
| Bromodichloroethane | 20 | < 1 | 24.3 | 24.5 | 0.82 | 122.00 |
| 1,2-Dichloropropane | 20 | < 1 | 24.8 | 27.0 | 8.49 | 129.50 |
| cis-1,3-Dichloropropene | 20 | < 1 | 20.5 | 20.1 | 1.97 | 101.50 |
| Trichloroethene | 20 | < 1 | 23.7 | 24.3 | 2.50 | 120.00 |
| Dibromochloroethane | 20 | < 1 | 22.4 | 23.6 | 5.22 | 115.00 |
| 1,1,2-Trichloroethane | 20 | < 1 | 22.4 | 23.6 | 5.22 | 115.00 |
| trans-1,3-Dichloropropene | 20 | < 1 | 22.4 | 23.6 | 5.22 | 115.00 |
| Bromoform | 20 | < 1 | 19.3 | 20.3 | 5.05 | 99.00 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 23.2 | 24.5 | 5.45 | 119.25 |
| Tetrachloroethene | 20 | < 1 | 23.2 | 24.5 | 5.45 | 119.25 |
| Chlorobenzene | 20 | < 1 | 21.3 | 21.7 | 1.86 | 107.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 19.8 | 21.0 | 5.80 | 102.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 19.8 | 20.6 | 3.96 | 101.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 19.9 | 21.2 | 6.33 | 102.75 |

Precision:

Accuracy:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22644

Analysis: (X) 602 or () 8028

Matrix: Water

Date tested: 3-23-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 25.8 | 28.7 | 10.64 | 136.25 |
| Benzene | 20 | < 1 | 24.9 | 26.6 | 6.60 | 128.75 |
| Toluene | 20 | < 1 | 24.3 | 25.2 | 3.64 | 123.75 |
| Ethyl benzene | 20 | < 1 | 23.0 | 23.7 | 3.00 | 116.75 |
| Xylene | 60 | < 1 | 69.1 | 70.5 | 2.01 | 116.33 |
| Chlorobenzene | 20 | < 1 | 23.1 | 23.3 | 0.86 | 116.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 19.5 | 21.2 | 8.35 | 101.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.2 | 21.5 | 6.24 | 104.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 20.5 | 21.4 | 4.30 | 104.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 100$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: hw

s16.66H

MATRIX SPIKE RESULTS

Laboratory No.: 22739-4

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 3-31-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 4.3 | 6.7 | 43.64 | 27.50 |
| Bromomethane | 20 | < 1 | 14.1 | 19.6 | 32.64 | 84.25 |
| Dichlorodifluoroethane | 20 | < 1 | 10.6 | 14.1 | 28.34 | 61.75 |
| Vinyl chloride | 20 | < 1 | 10.6 | 14.1 | 28.34 | 61.75 |
| Chloroethane | 20 | < 1 | 11.4 | 15.5 | 30.48 | 67.25 |
| Methylene chloride | 20 | < 5 | 20.8 | 29.7 | 35.25 | 126.25 |
| Trichlorofluoroethane | 20 | < 1 | 18.0 | 24.2 | 29.38 | 105.50 |
| 1,1-Dichloroethene | 20 | < 1 | 16.7 | 22.2 | 28.28 | 97.25 |
| 1,1-Dichloroethane | 20 | < 1 | 16.8 | 22.1 | 27.25 | 97.25 |
| trans-1,2-Dichloroethene | 20 | < 1 | 22.5 | 29.3 | 26.25 | 129.50 |
| Chloroform | 20 | < 1 | 21.9 | 23.9 | 8.73 | 114.50 |
| 1,2-Dichloroethane | 20 | < 1 | 15.8 | 20.9 | 27.79 | 91.75 |
| 1,1,1-Trichloroethane | 20 | < 1 | 20.1 | 26.3 | 26.72 | 116.00 |
| Carbon Tetrachloride | 20 | < 1 | 19.1 | 24.1 | 23.15 | 108.00 |
| Bromodichloromethane | 20 | < 1 | 18.6 | 23.7 | 24.11 | 105.75 |
| 1,2-Dichloropropane | 20 | < 1 | 15.5 | 21.0 | 30.14 | 91.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 16.5 | 22.2 | 29.46 | 96.75 |
| Trichloroethene | 20 | < 1 | 20.1 | 24.6 | 20.13 | 111.75 |
| Dibromochloromethane | 20 | < 1 | 15.1 | 20.4 | 29.86 | 88.75 |
| 1,1,2-Trichloroethane | 20 | < 1 | 15.1 | 20.4 | 29.86 | 88.75 |
| trans-1,3-Dichloropropene | 20 | < 1 | 15.1 | 20.4 | 29.86 | 88.75 |
| Bromoform | 20 | < 1 | 23.6 | 29.0 | 23.22 | 133.50 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 16.4 | 18.0 | 13.64 | 88.00 |
| Tetrachloroethene | 20 | < 1 | 16.4 | 18.0 | 13.64 | 88.00 |
| Chlorobenzene | 20 | < 1 | 18.9 | 19.7 | 4.15 | 96.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 15.5 | 17.0 | 9.23 | 81.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 14.9 | 16.8 | 11.99 | 79.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 14.5 | 16.1 | 10.46 | 76.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22739-4

Analysis: [X] 682 or [] 8828

Matrix: Water

Date Tested: 3-31-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 28 | < 1 | 19.7 | 23.9 | 19.27 | 109.28 |
| Benzene | 28 | < 1 | 21.7 | 23.3 | 7.11 | 112.58 |
| Toluene | 28 | < 1 | 22.6 | 23.1 | 2.19 | 114.25 |
| Ethyl benzene | 28 | < 1 | 22.8 | 22.8 | 8.86 | 110.88 |
| Xylene | 68 | < 1 | 61.7 | 65.1 | 5.36 | 105.67 |
| Chlorobenzene | 28 | < 1 | 22.1 | 22.2 | 8.45 | 110.75 |
| 1,4-Dichlorobenzene | 28 | < 1 | 21.1 | 23.8 | 8.62 | 110.25 |
| 1,3-Dichlorobenzene | 28 | < 1 | 21.5 | 23.8 | 10.15 | 113.25 |
| 1,2-Dichlorobenzene | 28 | < 1 | 20.8 | 23.6 | 12.61 | 111.80 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22814

Analysis: [X] 601 or [] 8012

Matrix: Water

Date Tested: 4-4-1989

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|---------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| Chloromethane | 20 | < 1 | 7.9 | 4.6 | 52.80 | 31.25 |
| Bromomethane | 20 | < 1 | 26.8 | 24.8 | 7.75 | 129.80 |
| Dichlorodifluoromethane | 20 | < 1 | 24.4 | 26.4 | 17.86 | 112.80 |
| Vinyl chloride | 20 | < 1 | 24.4 | 20.4 | 17.86 | 112.80 |
| Chloroethane | 20 | < 1 | 16.9 | 13.2 | 24.36 | 75.33 |
| Methylene chloride | 20 | < 5 | 30.9 | 27.4 | 12.81 | 145.75 |
| Trichlorofluoromethane | 20 | < 1 | 29.9 | 23.8 | 26.89 | 132.25 |
| 1,1-Dichloroethene | 20 | < 1 | 27.5 | 22.2 | 21.33 | 124.25 |
| 1,1-Dichloroethane | 20 | < 1 | 25.5 | 21.9 | 15.19 | 118.50 |
| trans-1,2-Dichloroethene | 20 | < 1 | 25.3 | 21.7 | 15.32 | 117.50 |
| Chloroform | 20 | < 1 | 25.4 | 22.8 | 18.79 | 128.50 |
| 1,2-Dichloroethane | 20 | < 1 | 23.5 | 21.7 | 7.96 | 113.80 |
| 1,1,1-Trichloroethane | 20 | < 1 | 30.4 | 21.6 | 33.85 | 130.80 |
| Carbon Tetrachloride | 20 | < 1 | 28.0 | 30.8 | 9.52 | 147.80 |
| Bromodichloromethane | 20 | < 1 | 25.6 | 24.5 | 4.39 | 125.25 |
| 1,2-Dichloropropane | 20 | < 1 | 25.3 | 24.0 | 5.27 | 123.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 28.4 | 28.8 | 1.42 | 141.80 |
| Trichloroethene | 20 | < 1 | 23.6 | 22.6 | 4.33 | 115.50 |
| Dibromochloromethane | 20 | < 1 | 24.8 | 24.6 | 2.47 | 121.50 |
| 1,1,2-Trichloroethane | 20 | < 1 | 24.8 | 24.6 | 2.47 | 121.50 |
| trans-1,3-Dichloropropene | 20 | < 1 | 24.8 | 24.6 | 2.47 | 121.50 |
| Bromoform | 20 | < 1 | 36.6 | 37.7 | 2.96 | 185.75 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 23.1 | 23.8 | 2.99 | 117.25 |
| Tetrachloroethene | 20 | < 1 | 23.1 | 23.8 | 2.99 | 117.25 |
| Chlorobenzene | 20 | < 1 | 22.9 | 23.8 | 3.85 | 116.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.6 | 21.5 | 0.46 | 107.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.8 | 21.7 | 0.46 | 108.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.7 | 21.5 | 0.93 | 108.80 |

Precision:

Accuracy:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22814

Analysis: (X) 682 or [] 8820

Matrix: Water

Date Tested: 4-4-1959

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 25.8 | 23.2 | 10.61 | 122.50 |
| Benzene | 20 | < 1 | 25.4 | 22.5 | 12.11 | 119.75 |
| Toluene | 20 | 3 | 27.3 | 25.4 | 7.21 | 116.75 |
| Ethyl benzene | 20 | < 1 | 23.5 | 23.2 | 1.28 | 116.75 |
| Xylene | 60 | < 1 | 70.7 | 67.8 | 4.19 | 115.42 |
| Chlorobenzene | 20 | < 1 | 24.0 | 23.4 | 2.53 | 110.50 |
| 1,4-Dichlor benzene | 20 | < 1 | 21.9 | 22.5 | 2.75 | 110.98 |
| 1,3-Dichlorobenzene | 20 | < 1 | 23.8 | 23.7 | 3.00 | 116.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 23.9 | 24.6 | 2.89 | 121.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22891-2

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-12-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloroethane | 20 | < 1 | 8.2 | 17.2 | 70.87 | 63.50 |
| Bromoethane | 20 | < 1 | 22.7 | 18.6 | 19.85 | 103.25 |
| Dichlorodifluoroethane | 20 | < 1 | 24.3 | 19.0 | 24.48 | 100.25 |
| Vinyl chloride | 20 | < 1 | 24.3 | 19.0 | 24.48 | 100.25 |
| Chloroethane | 20 | < 1 | 20.0 | 16.0 | 22.22 | 90.00 |
| Methylene chloride | 20 | < 5 | 22.3 | 21.0 | 6.00 | 100.25 |
| Trichlorofluoroethane | 20 | < 1 | 25.6 | 21.7 | 16.49 | 110.25 |
| 1,1-Dichloroethane | 20 | < 1 | 24.5 | 21.1 | 14.91 | 114.00 |
| 1,1-Dichloroethane | 20 | < 1 | 23.2 | 20.9 | 10.43 | 110.25 |
| trans-1,2-Dichloroethene | 20 | < 1 | 22.7 | 20.6 | 9.70 | 100.25 |
| Chloroform | 20 | < 1 | 23.0 | 21.0 | 9.09 | 110.00 |
| 1,2-Dichloroethane | 20 | < 1 | 21.4 | 19.0 | 7.77 | 103.00 |
| 1,1,1-Trichloroethane | 20 | < 1 | 23.3 | 20.8 | 11.34 | 110.25 |
| Carbon tetrachloride | 20 | < 1 | 23.0 | 21.2 | 8.14 | 110.50 |
| Bromodichloroethane | 20 | < 1 | 21.1 | 19.8 | 6.36 | 102.25 |
| 1,2-Dichloropropane | 20 | < 1 | 23.4 | 21.5 | 8.46 | 112.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 18.3 | 18.4 | 0.54 | 91.75 |
| Trichloroethene | 20 | < 1 | 23.0 | 22.1 | 3.99 | 112.75 |
| Dibromochloroethane | 20 | < 1 | 20.2 | 19.9 | 1.50 | 100.25 |
| 1,1,2-Trichloroethane | 20 | < 1 | 20.2 | 19.9 | 1.50 | 100.25 |
| trans-1,3-Dichloropropene | 20 | < 1 | 20.2 | 19.9 | 1.50 | 100.25 |
| Bromoform | 20 | < 1 | 16.7 | 17.7 | 5.81 | 86.00 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 21.2 | 21.6 | 1.87 | 107.00 |
| Tetrachloroethene | 20 | < 1 | 21.2 | 21.6 | 1.87 | 107.00 |
| Chlorobenzene | 20 | < 1 | 20.8 | 22.1 | 6.06 | 107.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 22.1 | 21.2 | 4.16 | 100.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.9 | 20.8 | 5.02 | 106.68 |
| 1,4-Dichlorobenzene | 20 | < 1 | 22.0 | 21.2 | 3.70 | 100.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22891-2

Analysis: [1] 682 or [] 8828

Matrix: Water

Date Tested: 4-12-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 22.6 | 21.1 | 6.86 | 189.25 |
| Benzene | 20 | < 1 | 21.3 | 19.8 | 7.30 | 182.75 |
| Toluene | 20 | < 1 | 24.3 | 23.5 | 3.35 | 119.50 |
| Ethyl benzene | 20 | < 1 | 21.9 | 18.7 | 15.76 | 181.50 |
| Xylene | 60 | < 1 | 65.7 | 66.1 | 0.61 | 189.83 |
| Chlorobenzene | 20 | < 1 | 21.8 | 21.9 | 0.46 | 189.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 15.2 | 16.2 | 6.37 | 78.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 19.7 | 30.7 | 43.65 | 126.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 18.7 | 19.8 | 5.71 | 96.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 22986-6

Analysis: ☒ 601 or ☐ 8010

Matrix: Water

Date Tested: 4-14-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 3.4 | 3.3 | 2.99 | 16.75 |
| Bromomethane | 20 | < 1 | 20.5 | 21.7 | 5.69 | 105.50 |
| Dichlorodifluoromethane | 20 | < 1 | 17.3 | 18.3 | 5.62 | 89.00 |
| Vinyl chloride | 20 | < 1 | 17.3 | 18.3 | 5.62 | 89.00 |
| Chloroethane | 20 | < 1 | 15.5 | 15.6 | 0.64 | 77.75 |
| Methylene chloride | 20 | < 5 | 27.9 | 26.6 | 4.77 | 136.25 |
| Trichlorofluoromethane | 20 | < 1 | 24.9 | 25.3 | 1.59 | 125.50 |
| 1,1-Dichloroethene | 20 | < 1 | 25.0 | 24.9 | 0.40 | 124.75 |
| 1,1-Dichloroethane | 20 | < 1 | 25.8 | 24.3 | 5.99 | 125.25 |
| trans-1,2-Dichloroethene | 20 | < 1 | 24.5 | 23.6 | 3.74 | 120.25 |
| Chloroform | 20 | < 1 | 20.0 | 25.6 | 8.96 | 134.00 |
| 1,2-Dichloroethane | 20 | < 1 | 23.1 | 19.8 | 15.58 | 107.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 24.6 | 23.4 | 5.00 | 120.00 |
| Carbon Tetrachloride | 20 | < 1 | 23.8 | 23.3 | 2.12 | 117.75 |
| Bromodichloromethane | 20 | < 1 | 24.5 | 21.9 | 11.21 | 116.00 |
| 1,2-Dichloropropane | 20 | < 1 | 24.0 | 21.6 | 10.53 | 114.00 |
| cis-1,3-Dichloropropene | 20 | < 1 | 20.4 | 18.4 | 10.31 | 97.00 |
| Trichloroethene | 20 | < 1 | 22.8 | 22.3 | 2.22 | 112.75 |
| Dibromochloromethane | 20 | < 1 | 22.1 | 20.1 | 9.48 | 105.50 |
| 1,1,2-Trichloroethane | 20 | < 1 | 22.1 | 20.1 | 9.48 | 105.50 |
| trans-1,3-Dichloropropene | 20 | < 1 | 22.1 | 20.1 | 9.48 | 105.50 |
| Bromoform | 20 | < 1 | 21.8 | 21.1 | 3.26 | 107.25 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 20.0 | 20.4 | 1.98 | 101.00 |
| Tetrachloroethene | 20 | < 1 | 20.0 | 20.4 | 1.98 | 101.00 |
| Chlorobenzene | 20 | < 1 | 21.5 | 21.5 | 0.00 | 107.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.5 | 22.2 | 3.20 | 109.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.5 | 21.5 | 0.00 | 107.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.4 | 21.4 | 0.00 | 107.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: W -

MATRIX SPIKE RESULTS

Laboratory No.: 22986-6

Analysis: [X] 682 or [] 8828

Matrix: Water

Date Tested: 4-14-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 24.5 | 22.6 | 8.87 | 117.75 |
| Benzene | 20 | < 1 | 23.8 | 22.8 | 8.87 | 114.50 |
| Toluene | 20 | < 1 | 23.1 | 23.6 | 2.14 | 116.75 |
| Ethyl benzene | 20 | < 1 | 21.1 | 22.3 | 5.53 | 108.50 |
| Xylene | 60 | < 1 | 65.5 | 67.4 | 2.86 | 110.75 |
| Chlorobenzene | 20 | < 1 | 22.2 | 22.7 | 2.23 | 112.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 29.7 | 29.2 | 1.70 | 147.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 23.3 | 23.3 | 0.00 | 116.50 |
| 1,2-Dichlorobenzene | 20 | < 1 | 25.8 | 24.6 | 1.61 | 124.80 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: m

MATRIX SPIKE RESULTS

Laboratory No.: 23324-2

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-6-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 10.7 | 10.7 | 0.00 | 53.50 |
| Bromomethane | 20 | < 1 | 20.1 | 19.5 | 3.03 | 99.00 |
| Dichlorodifluoromethane | 20 | < 1 | 18.6 | 18.5 | 0.54 | 92.75 |
| Vinyl chloride | 20 | < 1 | 18.6 | 18.5 | 0.54 | 92.75 |
| Chloroethane | 20 | < 1 | 17.8 | 18.2 | 2.22 | 90.00 |
| Methylene chloride | 20 | < 5 | 20.4 | 20.8 | 1.94 | 103.00 |
| Trichlorofluoromethane | 20 | < 1 | 21.2 | 21.3 | 0.47 | 106.25 |
| 1,1-Dichloroethene | 20 | < 1 | 21.2 | 21.7 | 2.33 | 107.25 |
| 1,1-Dichloroethane | 20 | < 1 | 20.9 | 21.1 | 0.95 | 105.00 |
| trans-1,2-Dichloroethene | 20 | < 1 | 21.0 | 21.5 | 2.35 | 106.25 |
| Chloroform | 20 | < 1 | 21.0 | 21.0 | 0.00 | 105.00 |
| 1,2-Dichloroethane | 20 | < 1 | 20.6 | 21.1 | 2.40 | 104.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 20.9 | 21.8 | 4.22 | 106.75 |
| Carbon Tetrachloride | 20 | < 1 | 21.2 | 20.8 | 1.90 | 105.00 |
| Bromodichloromethane | 20 | < 1 | 20.6 | 20.5 | 0.49 | 102.75 |
| 1,2-Dichloropropane | 20 | < 1 | 22.5 | 21.3 | 5.48 | 109.50 |
| cis-1,3-Dichloropropene | 20 | < 1 | 17.8 | 20.1 | 12.14 | 94.75 |
| Trichloroethene | 20 | < 1 | 21.0 | 21.3 | 1.42 | 105.75 |
| Dibromochloromethane | 20 | < 1 | 19.6 | 21.2 | 7.84 | 102.00 |
| 1,1,2-Trichloroethane | 20 | < 1 | 19.6 | 21.2 | 7.84 | 102.00 |
| trans-1,3-Dichloropropene | 20 | < 1 | 19.6 | 21.2 | 7.84 | 102.00 |
| Bromoform | 20 | < 1 | 18.9 | 20.9 | 10.05 | 99.50 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 21.1 | 22.6 | 6.86 | 109.25 |
| Tetrachloroethene | 20 | < 1 | 21.1 | 22.6 | 6.86 | 109.25 |
| Chlorobenzene | 20 | < 1 | 20.9 | 20.8 | 0.48 | 104.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.4 | 21.2 | 3.85 | 104.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 20.6 | 21.0 | 1.92 | 104.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 20.6 | 21.2 | 2.87 | 104.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: 

MATRIX SPIKE RESULTS

Laboratory No.: 23324-2

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 6-6-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 19.3 | 19.9 | 3.06 | 98.00 |
| Benzene | 20 | < 1 | 19.4 | 19.8 | 2.04 | 98.00 |
| Toluene | 20 | < 1 | 20.4 | 20.3 | 0.49 | 101.75 |
| Ethyl benzene | 20 | 1 | 19.4 | 19.3 | 0.52 | 91.75 |
| Xylene | 60 | < 1 | 63.5 | 63.1 | 0.63 | 105.50 |
| Chlorobenzene | 20 | < 1 | 20.1 | 20.1 | 0.00 | 100.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.9 | 21.9 | 0.05 | 107.48 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.4 | 21.7 | 1.39 | 107.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.9 | 21.9 | 0.00 | 109.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23372-4

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-14-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 16.9 | 20.1 | 17.30 | 92.50 |
| Bromomethane | 20 | < 1 | 19.1 | 19.0 | 8.52 | 95.25 |
| Dichlorodifluoromethane | 20 | < 1 | 18.9 | 19.7 | 4.15 | 96.50 |
| Vinyl chloride | 20 | < 1 | 18.9 | 19.7 | 4.15 | 96.50 |
| Chloroethane | 20 | < 1 | 20.5 | 22.4 | 8.86 | 107.25 |
| Methylene chloride | 20 | < 5 | 13.3 | 14.1 | 5.84 | 68.50 |
| Trichlorofluoromethane | 20 | < 1 | 20.4 | 22.1 | 8.00 | 106.25 |
| 1,1-Dichloroethene | 20 | < 1 | 20.3 | 21.5 | 5.74 | 104.50 |
| 1,1-Dichloroethane | 20 | < 1 | 20.2 | 21.3 | 5.30 | 103.75 |
| trans-1,2-Dichloroethene | 20 | < 1 | 20.1 | 20.7 | 2.94 | 102.00 |
| Chloroform | 20 | < 1 | 20.0 | 20.5 | 2.47 | 101.25 |
| 1,2-Dichloroethane | 20 | < 1 | 19.1 | 19.6 | 2.58 | 96.75 |
| 1,1,1-Trichloroethane | 20 | < 1 | 21.1 | 22.5 | 6.42 | 109.00 |
| Carbon Tetrachloride | 20 | < 1 | 21.5 | 23.3 | 8.04 | 112.00 |
| Bromodichloromethane | 20 | < 1 | 19.4 | 20.2 | 4.84 | 99.00 |
| 1,2-Dichloropropane | 20 | < 1 | 20.2 | 21.3 | 5.30 | 103.75 |
| cis-1,3-Dichloropropene | 20 | < 1 | 23.1 | 25.4 | 9.48 | 121.25 |
| Trichloroethene | 20 | < 1 | 20.8 | 21.3 | 2.38 | 105.25 |
| Dibromochloromethane | 20 | < 1 | 19.3 | 20.7 | 7.00 | 100.00 |
| 1,1,2-Trichloroethane | 20 | < 1 | 19.3 | 20.7 | 7.00 | 100.00 |
| trans-1,3-Dichloropropene | 20 | < 1 | 19.3 | 20.7 | 7.00 | 100.00 |
| Bromoform | 20 | < 1 | 20.1 | 22.1 | 9.48 | 105.50 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 20.1 | 22.3 | 10.38 | 106.00 |
| Tetrachloroethene | 20 | < 1 | 20.1 | 22.3 | 10.38 | 106.00 |
| Chlorobenzene | 20 | < 1 | 20.5 | 21.1 | 2.88 | 104.00 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.2 | 21.1 | 0.47 | 105.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.0 | 21.2 | 0.95 | 105.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.0 | 21.2 | 0.95 | 105.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23372-4

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 6-14-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 20.8 | 34.8 | 50.36 | 139.00 |
| Benzene | 20 | < 1 | 20.1 | 22.0 | 9.03 | 105.25 |
| Toluene | 20 | < 1 | 21.3 | 21.3 | 0.00 | 166.50 |
| Ethyl benzene | 20 | < 1 | 27.1 | 26.5 | 2.24 | 134.00 |
| Xylene | 60 | < 1 | 69.6 | 72.8 | 4.49 | 118.67 |
| Chlorobenzene | 20 | < 1 | 22.8 | 22.3 | 2.22 | 112.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 22.3 | 20.0 | 10.87 | 105.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 22.8 | 23.4 | 2.60 | 115.50 |
| 1,2-Dichlorobenzene | 20 | < 1 | 22.3 | 20.0 | 10.87 | 105.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: 

MATRIX SPIKE RESULTS

Laboratory No.: 23398-2

Analysis: [X] 601 or [] 6010

Matrix: Water

Date Tested: 6-14-1989

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|---------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| Chloroethane | 20 | < 1 | 23.5 | 19.5 | 18.27 | 107.53 |
| Bromoethane | 20 | < 1 | 35.0 | 30.0 | 15.44 | 162.29 |
| Dichlorodifluoromethane | 20 | < 1 | 23.4 | 19.4 | 18.81 | 107.13 |
| Vinyl chloride | 20 | < 1 | 23.4 | 19.4 | 18.81 | 107.13 |
| Chloroethane | 20 | < 1 | 26.3 | 26.3 | 0.00 | 131.50 |
| Methylene chloride | 20 | < 5 | 23.1 | 18.5 | 22.00 | 104.10 |
| Trichlorofluoromethane | 20 | < 1 | 32.7 | 27.1 | 18.81 | 149.63 |
| 1,1-Dichloroethene | 20 | < 1 | 27.5 | 25.7 | 6.77 | 132.85 |
| 1,1-Dichloroethane | 20 | < 1 | 29.3 | 29.3 | 0.07 | 146.45 |
| trans-1,2-Dichloroethene | 20 | < 1 | 28.5 | 28.0 | 1.81 | 141.08 |
| Chloroform | 20 | < 1 | 28.6 | 28.0 | 2.01 | 141.63 |
| 1,2-Dichloroethane | 20 | < 1 | 28.8 | 27.0 | 6.41 | 139.63 |
| 1,1,1-Trichloroethane | 20 | < 1 | 29.6 | 28.5 | 3.78 | 145.45 |
| Carbon Tetrachloride | 20 | < 1 | 29.5 | 29.4 | 0.37 | 147.28 |
| Bromodichloromethane | 20 | < 1 | 26.4 | 25.9 | 1.68 | 130.70 |
| 1,2-Dichloropropane | 20 | < 1 | 29.8 | 28.2 | 5.48 | 145.13 |
| cis-1,3-Dichloropropene | 20 | < 1 | 28.7 | 23.0 | 22.02 | 129.18 |
| Trichloroethene | 20 | < 1 | 26.1 | 26.0 | 0.58 | 130.33 |
| Dibromochloromethane | 20 | < 1 | 27.6 | 26.0 | 6.09 | 133.93 |
| 1,1,2-Trichloroethane | 20 | < 1 | 27.6 | 26.0 | 6.09 | 133.83 |
| trans-1,3-Dichloropropene | 20 | < 1 | 27.6 | 26.0 | 6.09 | 133.83 |
| Bromocloro | 20 | < 1 | 28.6 | 26.1 | 10.06 | 137.15 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 26.6 | 25.5 | 3.95 | 130.28 |
| Tetrachloroethene | 20 | < 1 | 26.6 | 25.5 | 3.95 | 130.28 |
| Chlorobenzene | 20 | < 1 | 22.8 | 23.5 | 3.33 | 115.68 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.7 | 19.9 | 4.19 | 101.48 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.1 | 20.0 | 5.36 | 102.55 |
| 1,4-Dichlorobenzene | 20 | < 1 | 20.6 | 19.6 | 4.58 | 100.45 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23398-2

Analysis: [X] 502 or [] 8020

Matrix: Water

Date Tested: 6-14-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 39.2 | 33.2 | 16.57 | 181.00 |
| Benzene | 20 | < 1 | 27.5 | 24.8 | 10.33 | 130.75 |
| Toluene | 20 | < 1 | 26.1 | 22.6 | 14.37 | 121.75 |
| Ethyl benzene | 20 | < 1 | 27.8 | 29.2 | 4.91 | 142.50 |
| Xylene | 60 | < 1 | 72.0 | 71.7 | 0.42 | 119.75 |
| Chlorobenzene | 20 | < 1 | 24.6 | 25.2 | 2.41 | 124.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 27.1 | 25.2 | 7.27 | 130.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.8 | 20.6 | 5.66 | 106.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 27.1 | 25.2 | 7.27 | 130.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 20417

Analysis: [X] 601 or [] 8910

Matrix: Water

Date Tested: 6-15-1999

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 11.6 | 12.8 | 9.84 | 61.00 |
| Bromomethane | 20 | < 1 | 21.3 | 24.3 | 13.16 | 114.00 |
| Dichlorodifluoromethane | 20 | < 1 | 12.7 | 15.4 | 19.22 | 70.25 |
| Vinyl chloride | 20 | < 1 | 12.7 | 15.4 | 19.22 | 70.25 |
| Chloroethane | 20 | < 1 | 25.2 | 24.3 | 3.64 | 123.75 |
| Methylene chloride | 20 | < 5 | 17.9 | 19.8 | 10.08 | 94.25 |
| Trichlorofluoromethane | 20 | < 1 | 18.5 | 24.2 | 26.70 | 106.75 |
| 1,1-Dichloroethene | 20 | < 1 | 19.2 | 24.0 | 22.22 | 108.00 |
| 1,1-Dichloroethane | 20 | < 1 | 21.2 | 24.5 | 14.44 | 114.25 |
| trans-1,2-Dichloroethene | 20 | 8 | 28.8 | 34.4 | 17.72 | 118.00 |
| Chloroform | 20 | < 1 | 21.4 | 25.0 | 15.52 | 116.00 |
| 1,2-Dichloroethane | 20 | < 1 | 21.0 | 23.6 | 11.66 | 111.50 |
| 1,1,1-Trichloroethane | 20 | < 1 | 21.9 | 26.3 | 18.26 | 120.50 |
| Carbon Tetrachloride | 20 | < 1 | 21.3 | 26.7 | 22.50 | 120.00 |
| Bromodichloromethane | 20 | < 1 | 21.1 | 23.6 | 11.19 | 111.75 |
| 1,2-Dichloropropane | 20 | < 1 | 22.6 | 24.7 | 8.88 | 118.25 |
| cis-1,2-Dichloropropene | 20 | < 1 | 27.4 | 24.7 | 10.36 | 130.25 |
| Trichloroethene | 20 | 4 | 26.8 | 30.9 | 14.21 | 124.25 |
| Dibromochloromethane | 20 | < 1 | 21.4 | 23.1 | 7.64 | 111.25 |
| 1,1,1-Trichloroethene | 20 | 1 | 21.4 | 23.1 | 7.64 | 111.25 |
| trans-1,2-Dichloropropene | 20 | < 1 | 21.4 | 23.1 | 7.64 | 111.25 |
| Bromoform | 20 | < 1 | 22.6 | 24.9 | 9.68 | 118.75 |
| 1,1,1,2-Tetrachloroethane | 20 | < 1 | 22.1 | 25.1 | 12.71 | 118.00 |
| Tetrachloroethene | 20 | < 1 | 22.1 | 25.1 | 12.71 | 118.00 |
| Chlorobenzene | 20 | < 1 | 21.9 | 23.6 | 7.47 | 113.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.8 | 21.5 | 1.39 | 108.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.1 | 21.3 | 0.94 | 106.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.1 | 21.3 | 0.94 | 106.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23417

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 6-15-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 27.6 | 31.7 | 13.83 | 148.25 |
| Benzene | 20 | < 1 | 22.4 | 25.5 | 12.94 | 119.75 |
| Toluene | 20 | < 1 | 22.9 | 25.1 | 9.17 | 120.00 |
| Ethyl benzene | 20 | < 1 | 25.6 | 27.7 | 8.60 | 133.75 |
| Xylene | 60 | < 1 | 73.0 | 75.9 | 3.90 | 124.08 |
| Chlorobenzene | 20 | < 1 | 24.0 | 24.9 | 3.68 | 122.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 27.1 | 26.9 | 0.74 | 135.00 |
| 1,3-Dichlorobenzene | 20 | < 1 | 23.6 | 22.9 | 3.01 | 116.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 27.1 | 26.9 | 0.74 | 135.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

s16.66H

MATRIX SPIKE RESULTS

Laboratory No.: 23418-4

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-19-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloroethane | 20 | < 1 | 11.3 | 16.5 | 37.41 | 69.50 |
| Bromoethane | 20 | < 1 | 12.6 | 18.3 | 36.89 | 77.25 |
| Dichlorodifluoroethane | 20 | < 1 | 10.5 | 16.2 | 42.70 | 66.75 |
| Vinyl chloride | 20 | < 1 | 10.5 | 16.2 | 42.70 | 66.75 |
| Chloroethane | 20 | < 1 | 16.4 | 23.7 | 36.41 | 100.25 |
| Methylene chloride | 20 | < 5 | 24.8 | 32.7 | 38.69 | 141.75 |
| Trichlorofluoroethane | 20 | < 1 | 14.2 | 24.9 | 54.73 | 97.75 |
| 1,1-Dichloroethene | 20 | < 1 | 14.6 | 22.3 | 41.73 | 92.25 |
| 1,1-Dichloroethane | 20 | < 1 | 20.5 | 29.7 | 36.65 | 125.50 |
| trans-1,2-Dichloroethene | 20 | < 1 | 17.6 | 24.4 | 32.38 | 105.00 |
| Chloroform | 20 | < 1 | 24.8 | 32.1 | 28.88 | 140.25 |
| 1,2-Dichloroethane | 20 | < 1 | 23.1 | 28.1 | 19.53 | 128.00 |
| 1,1,1-Trichloroethane | 20 | < 1 | 16.7 | 24.1 | 36.27 | 102.00 |
| Carbon Tetrachloride | 20 | < 1 | 14.6 | 22.1 | 40.87 | 91.75 |
| Bromodichloroethane | 20 | < 1 | 17.2 | 21.4 | 21.62 | 96.43 |
| 1,2-Dichloropropane | 20 | < 1 | 15.9 | 16.3 | 2.40 | 80.50 |
| cis-1,3-Dichloropropene | 20 | < 1 | 15.9 | 16.3 | 2.40 | 80.50 |
| Trichloroethene | 20 | < 1 | 18.2 | 23.4 | 25.00 | 104.00 |
| Dibromochloroethane | 20 | < 1 | 19.8 | 24.8 | 22.42 | 111.50 |
| 1,1,2-Trichloroethane | 20 | < 1 | 19.8 | 24.8 | 22.42 | 111.50 |
| trans-1,3-Dichloropropene | 20 | < 1 | 19.8 | 24.8 | 22.42 | 111.50 |
| Bromoform | 20 | < 1 | 9.4 | 11.8 | 15.69 | 51.00 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 19.8 | 24.4 | 20.81 | 110.50 |
| Tetrachloroethene | 20 | < 1 | 19.8 | 24.4 | 20.81 | 110.50 |
| Chlorobenzene | 20 | < 1 | 18.8 | 21.5 | 13.40 | 100.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.4 | 19.9 | 7.26 | 103.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 19.6 | 21.5 | 9.25 | 102.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.4 | 21.4 | 0.00 | 107.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23418-4

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 6-19-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 24.1 | 29.3 | 19.48 | 133.50 |
| Benzene | 20 | < 1 | 21.4 | 26.2 | 20.17 | 119.00 |
| Toluene | 20 | < 1 | 25.9 | 30.3 | 15.66 | 140.50 |
| Ethyl benzene | 20 | < 1 | 22.7 | 25.6 | 12.01 | 120.75 |
| Xylene | 60 | < 1 | 62.8 | 68.1 | 8.10 | 109.08 |
| Chlorobenzene | 20 | < 1 | 22.4 | 24.3 | 8.14 | 116.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 22.1 | 22.3 | 0.90 | 111.00 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.4 | 20.6 | 0.98 | 102.50 |
| 1,2-Dichlorobenzene | 20 | < 1 | 22.1 | 22.3 | 0.90 | 111.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23478

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-23-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 12.1 | 15.4 | 24.00 | 68.75 |
| Bromomethane | 20 | < 1 | 25.3 | 32.7 | 25.52 | 145.00 |
| Dichlorodifluoromethane | 20 | < 1 | 20.2 | 26.5 | 26.98 | 116.75 |
| Vinyl chloride | 20 | < 1 | 20.2 | 26.5 | 26.98 | 116.75 |
| Chloroethane | 20 | < 1 | 20.8 | 26.2 | 22.98 | 117.50 |
| Methylene chloride | 20 | < 5 | 40.3 | 33.6 | 10.13 | 104.75 |
| Trichlorofluoromethane | 20 | < 1 | 24.9 | 30.2 | 19.24 | 137.75 |
| 1,1-Dichloroethene | 20 | < 1 | 20.5 | 26.4 | 23.73 | 118.00 |
| 1,1-Dichloroethane | 20 | < 1 | 21.8 | 27.4 | 22.76 | 123.00 |
| trans-1,2-Dichloroethene | 20 | < 1 | 21.0 | 26.3 | 22.41 | 118.25 |
| Chloroform | 20 | < 1 | 22.8 | 27.1 | 17.23 | 124.75 |
| 1,2-Dichloroethane | 20 | < 1 | 21.6 | 26.1 | 18.07 | 119.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 22.9 | 28.1 | 20.39 | 127.50 |
| Carbon Tetrachloride | 20 | < 1 | 21.9 | 26.9 | 20.49 | 122.00 |
| Bromodichloromethane | 20 | < 1 | 22.3 | 26.6 | 17.59 | 122.25 |
| 1,2-Dichloropropane | 20 | < 1 | 22.0 | 26.5 | 18.56 | 121.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 19.8 | 23.6 | 17.51 | 100.50 |
| Trichloroethene | 20 | < 1 | 21.6 | 24.9 | 14.19 | 116.25 |
| Dibromochloromethane | 20 | < 1 | 22.1 | 25.7 | 15.06 | 119.50 |
| 1,1,2-Trichloroethane | 20 | < 1 | 22.1 | 25.7 | 15.06 | 119.50 |
| trans-1,3-Dichloropropene | 20 | < 1 | 22.1 | 25.7 | 15.06 | 119.50 |
| Bromoform | 20 | < 1 | 22.5 | 26.0 | 14.43 | 121.25 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 21.8 | 24.0 | 9.61 | 114.50 |
| Tetrachloroethene | 20 | < 1 | 21.8 | 24.0 | 9.61 | 114.50 |
| Chlorobenzene | 20 | < 1 | 21.8 | 23.3 | 6.65 | 112.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.9 | 21.6 | 3.29 | 106.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 20.9 | 21.8 | 4.22 | 106.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.1 | 21.5 | 1.00 | 106.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23479

Analysis: [X] 602 or [] 8920

Matrix: Water

Date Tested: 6-23-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 22.9 | 27.4 | 17.89 | 125.75 |
| Benzene | 20 | < 1 | 21.8 | 24.6 | 15.79 | 111.39 |
| Toluene | 20 | < 1 | 19.8 | 23.0 | 14.95 | 107.00 |
| Ethyl benzene | 20 | < 1 | 21.8 | 23.0 | 5.36 | 112.69 |
| Xylene | 60 | < 1 | 63.5 | 66.7 | 4.92 | 108.50 |
| Chlorobenzene | 20 | < 1 | 20.2 | 21.5 | 6.24 | 104.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.8 | 24.1 | 10.02 | 114.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.9 | 23.1 | 10.00 | 110.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.8 | 24.1 | 10.02 | 114.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23521-3

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-27-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| Chloroethane | 20 | < 1 | 4.1 | 3.7 | 5.80 | 20.00 |
| Bromoethane | 20 | < 1 | 22.8 | 22.4 | 1.77 | 113.00 |
| Dichlorodifluoroethane | 20 | < 1 | 22.9 | 21.3 | 7.24 | 110.50 |
| Vinyl chloride | 20 | < 1 | 22.9 | 21.3 | 7.24 | 110.50 |
| Chloroethane | 20 | < 1 | 17.8 | 16.9 | 5.19 | 86.75 |
| Methylene chloride | 20 | < 5 | 25.6 | 25.3 | 1.18 | 127.25 |
| Trichlorofluoroethane | 20 | < 1 | 28.1 | 27.4 | 2.52 | 138.75 |
| 1,1-Dichloroethene | 20 | < 1 | 24.6 | 24.3 | 1.23 | 122.25 |
| 1,1-Dichloroethane | 20 | < 1 | 25.4 | 25.3 | 0.39 | 126.75 |
| trans-1,2-Dichloroethene | 20 | < 1 | 23.8 | 23.8 | 0.00 | 119.00 |
| Chloroform | 20 | < 1 | 24.8 | 24.9 | 0.48 | 124.25 |
| 1,2-Dichloroethane | 20 | < 1 | 24.8 | 23.9 | 0.42 | 119.75 |
| 1,1,1-Trichloroethane | 20 | < 1 | 25.2 | 25.5 | 1.18 | 126.75 |
| Carbon Tetrachloride | 20 | < 1 | 23.7 | 23.6 | 0.42 | 118.25 |
| Bromodichloroethane | 20 | < 1 | 23.5 | 23.6 | 0.42 | 117.75 |
| 1,2-Dichloropropane | 20 | < 1 | 21.1 | 21.1 | 0.00 | 105.50 |
| cis-1,3-Dichloropropene | 20 | < 1 | 16.7 | 17.2 | 2.95 | 84.75 |
| Trichloroethene | 20 | < 1 | 22.8 | 22.7 | 0.44 | 113.75 |
| Dibromochloroethane | 20 | < 1 | 22.9 | 23.1 | 0.87 | 115.00 |
| 1,1,2-Trichloroethane | 20 | < 1 | 22.9 | 23.1 | 0.87 | 115.00 |
| trans-1,3-Dichloropropene | 20 | < 1 | 22.9 | 23.1 | 0.87 | 115.00 |
| Bromoform | 20 | < 1 | 23.8 | 22.9 | 3.44 | 114.75 |
| 1,1,2,2-Tetrachloroethane | 20 | < 1 | 22.3 | 22.4 | 0.45 | 111.75 |
| Tetrachloroethene | 20 | < 1 | 22.3 | 22.4 | 0.45 | 111.75 |
| Chlorobenzene | 20 | < 1 | 18.1 | 18.2 | 0.55 | 90.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 15.4 | 15.8 | 2.56 | 78.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 15.9 | 16.0 | 0.63 | 79.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 15.5 | 16.0 | 3.17 | 78.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

MATRIX SPIKE RESULTS

Laboratory No.: 23521-3

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 6-27-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 26.6 | 26.0 | 2.28 | 131.50 |
| Benzene | 20 | < 1 | 25.1 | 24.0 | 4.40 | 122.75 |
| Toluene | 20 | < 1 | 19.4 | 18.0 | 7.49 | 93.50 |
| Ethyl benzene | 20 | < 1 | 21.9 | 18.3 | 15.23 | 101.75 |
| Xylene | 60 | < 1 | 57.9 | 52.9 | 9.03 | 92.33 |
| Chlorobenzene | 20 | < 1 | 18.0 | 16.8 | 6.90 | 87.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 18.7 | 16.6 | 11.90 | 88.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 19.5 | 16.3 | 17.88 | 89.50 |
| 1,2-Dichlorobenzene | 20 | < 1 | 18.7 | 16.6 | 11.90 | 88.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:



MATRIX SPIKE RESULTS

Laboratory No.: 24195-8

Analysis: (1) 501 or () 5010

Matrix: Water

Date Tested: 9-7-1989

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|-------------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| Chloroethane | 20 | < 1 | 16.1 | 12.5 | 25.17 | 71.50 |
| Bromoethane | 20 | < 1 | 22.3 | 19.9 | 11.37 | 105.50 |
| Dichlorodifluoroethane † | 40 | < 1 | 44.3 | 34.8 | 24.02 | 98.00 |
| Chloroethane | 20 | < 1 | 20.7 | 17.5 | 16.75 | 95.50 |
| Methylene chloride | 20 | < 5 | 22.9 | 21.8 | 4.92 | 111.75 |
| Trichlorofluoroethane | 20 | < 1 | 27.2 | 21.1 | 25.26 | 120.75 |
| 1,1-Dichloroethene | 20 | < 1 | 26.0 | 20.3 | 24.62 | 115.75 |
| 1,1-Dichloroethane | 20 | < 1 | 23.8 | 21.4 | 10.62 | 113.00 |
| trans-1,2-Dichloroethene | 20 | < 1 | 24.3 | 20.8 | 15.52 | 112.75 |
| Chloroform | 20 | < 1 | 23.3 | 21.9 | 6.19 | 113.00 |
| 1,2-Dichloroethane | 20 | < 1 | 22.3 | 22.3 | 0.00 | 111.50 |
| 1,1,1-Trichloroethane | 20 | < 1 | 26.0 | 21.8 | 17.57 | 119.50 |
| Carbon Tetrachloride | 20 | < 1 | 26.6 | 21.4 | 21.67 | 120.00 |
| Bromodichloromethane | 20 | < 1 | 19.9 | 19.6 | 1.52 | 98.75 |
| 1,2-Dichloropropane | 20 | < 1 | 24.0 | 23.3 | 2.96 | 119.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 24.7 | 22.1 | 6.54 | 107.00 |
| Trichloroethene | 20 | < 1 | 24.7 | 22.3 | 10.21 | 117.50 |
| Dibromochloromethane †† | 60 | < 1 | 59.4 | 71.5 | 2.26 | 117.93 |
| Bromoform | 20 | < 1 | 17.5 | 18.1 | 3.37 | 99.00 |
| 1,1,2,2-Tetrachloroethane ††† | 40 | < 1 | 51.5 | 46.3 | 10.63 | 122.25 |
| Chlorobenzene | 20 | < 1 | 24.7 | 23.0 | 7.13 | 119.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 25.5 | 23.9 | 6.40 | 123.50 |
| 1,2-Dichlorobenzene | 20 | < 1 | 24.6 | 23.6 | 4.15 | 120.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 25.3 | 24.0 | 5.27 | 123.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: [Signature]

† Coelutes with vinyl chloride

†† Coelutes with 1,1,2-trichloroethane and trans-1,3-dichloropropene

††† Coelutes with tetrachloroethene



Engineers
Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 24195-3

Analysis: [] 602 or [] 3020

Matrix: Water

Date tested: 9-7-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 21.5 | 21.2 | 1.41 | 106.75 |
| Benzene | 20 | < 1 | 21.0 | 19.2 | 0.96 | 100.50 |
| Toluene | 20 | < 1 | 26.0 | 21.5 | 16.95 | 119.75 |
| Ethyl benzene | 20 | < 1 | 29.6 | 26.6 | 7.25 | 139.00 |
| Xylene | 60 | < 1 | 70.4 | 64.8 | 8.79 | 116.7 |
| Chlorobenzene | 20 | < 1 | 23.5 | 22.1 | 1.1 | 100 |
| 1,4-Dichlorobenzene | 30 | < 1 | 21.8 | 20.5 | 0.9 | 107.5 |
| 1,3-Dichlorobenzene | 20 | < 1 | 26.1 | 25.0 | 1.0 | 127.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 27.4 | 26.3 | 1.0 | 134.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: 



MATRIX SPIKE RESULTS

Laborator, No.: 24242-7

Analysis: [X] 601 or [] 6210

Matrix: Water

Date Tested: 9-9-1989

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|-------------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| Chloroethane | 20 | < 1 | 11.1 | 11.8 | 6.11 | 57.25 |
| Bromoethane | 20 | < 1 | 16.5 | 18.2 | 9.88 | 86.75 |
| Dichlorodifluoroethane † | 40 | < 1 | 31.5 | 32.1 | 1.69 | 79.58 |
| Chloroethane | 20 | < 1 | 17.2 | 17.2 | 0.00 | 66.00 |
| Methylene chloride | 20 | < 5 | 17.9 | 19.1 | 6.49 | 92.58 |
| Trichlorofluoroethane | 20 | < 1 | 21.3 | 22.8 | 3.23 | 108.25 |
| 1,1-Dichloroethane | 20 | < 1 | 20.4 | 21.6 | 5.71 | 105.00 |
| 1,1-Trichloroethane | 20 | < 1 | 19.3 | 20.4 | 5.54 | 99.25 |
| trans-1,2-Dichloroethane | 20 | < 1 | 19.5 | 20.9 | 6.45 | 100.75 |
| Chloroform | 20 | < 1 | 22.5 | 21.8 | 6.98 | 108.75 |
| 1,2-Dichloroethane | 20 | < 1 | 17.6 | 19.7 | 11.26 | 93.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 22.3 | 22.8 | 2.22 | 112.75 |
| Carbon Tetrachloride | 20 | < 1 | 23.6 | 23.4 | 0.55 | 117.58 |
| Bromodichloroethane | 20 | < 1 | 17.3 | 18.8 | 3.97 | 89.25 |
| 1,2-Dichloropropane | 20 | < 1 | 20.8 | 20.7 | 3.44 | 101.75 |
| cis-1,2-Dichloropropene | 20 | < 1 | 16.2 | 15.3 | 12.17 | 86.25 |
| Trichloroethene | 20 | < 1 | 21.6 | 22.6 | 4.52 | 110.58 |
| Dibromochloroethane †† | 60 | < 1 | 58.9 | 60.5 | 17.24 | 92.83 |
| Bromoform | 20 | < 1 | 21.6 | 26.3 | 19.62 | 119.75 |
| 1,1,2,2-Tetrachloroethane ††† | 40 | < 1 | 42.8 | 45.8 | 6.77 | 110.75 |
| Chlorobenzene | 20 | < 1 | 22.8 | 22.6 | 2.69 | 111.58 |
| 1,2-Dichlorobenzene | 20 | < 1 | 24.8 | 24.6 | 0.81 | 103.58 |
| 1,3-Dichlorobenzene | 20 | < 1 | 22.8 | 23.6 | 3.45 | 116.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 24.2 | 24.3 | 0.41 | 121.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: [Signature]

† Coelutes with vinyl chloride

†† Coelutes with 1,1,2-trichloroethane and trans-1,3-Dichloropropene

††† Coelutes with Tetrachloroethene

CH2M HILL

Regional
Environmental Laboratory

5030 Caterpillar Road
Irvine, CA 92603

916 244 5227

F-847

000022



Engineers
Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 24342-7

Analysis: [X] 602 or [] 6020

Matrix: Water

Date Tested: 9-9-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Tert Butyl Methyl Ether | 20 | < 1 | 15.8 | 20.5 | 25.98 | 98.75 |
| Benzene | 20 | < 1 | 19.3 | 20.5 | 6.83 | 99.58 |
| Toluene | 20 | < 1 | 22.8 | 31.7 | 32.66 | 136.25 |
| Ethyl benzene | 20 | < 1 | 22.1 | 22.4 | 1.35 | 111.25 |
| Xylene | 60 | < 1 | 70.8 | 70.7 | 1.32 | 117.25 |
| Chlorobenzene | 20 | < 1 | 21.5 | 21.8 | 1. | 108.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 24.2 | 22.7 | 6. | 117.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 27.5 | 27.7 | 0.11 | 138.88 |
| 1,2-Dichlorobenzene | 20 | < 1 | 26.5 | 28.8 | 8.32 | 138.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: [Signature]

CEMHILL

Reeding
Environmental Laboratory

5090 Caterpillar Road
Folsom, California 95623

916 244 5227

F-848

000023



Engineers
Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 24352-7

Analysis: [X] 501 or [] 2010

Matrix: Water

Date Tested: 9-27-1999

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|-------------------------------|----------------------------|---------------------|--------------------|------------------------------|--------|------------------------|
| Chloroethane | 20 | < 1 | 8.3 | 8.6 | 173.83 | 22.25 |
| Bromoethane | 20 | < 1 | 16.9 | 17.4 | 2.92 | 95.75 |
| Dichlorodifluoroethane I | 40 | < 1 | 32.8 | 33.7 | 5.18 | 92.13 |
| Chloroethane | 20 | < 1 | 15.4 | 16.5 | 6.98 | 79.75 |
| Methylene chloride | 20 | < 5 | 18.7 | 19.8 | 1.59 | 94.25 |
| Trichlorofluoroethane | 20 | < 1 | 18.8 | 19.2 | 6.45 | 93.88 |
| 1,1-Dichloroethane | 20 | < 1 | 18.2 | 19.1 | 4.83 | 93.25 |
| 1,1-Dichloroethane | 20 | < 1 | 18.7 | 19.4 | 3.67 | 95.25 |
| trans-1,2-Dichloroethene | 20 | < 1 | 17.8 | 18.7 | 4.95 | 91.25 |
| Chloroform | 20 | < 1 | 22.3 | 22.5 | 8.41 | 107.88 |
| 1,2-Dichloroethane | 20 | < 1 | 18.7 | 19.8 | 1.59 | 94.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 19.5 | 20.8 | 2.53 | 98.75 |
| Carbon Tetrachloride | 20 | < 1 | 28.2 | 28.5 | 1.47 | 101.75 |
| Bromochloroethane | 20 | < 1 | 18.7 | 19.7 | 2.16 | 92.58 |
| 1,2-Dichloropropene | 20 | < 1 | 19.5 | 19.3 | 4.23 | 94.58 |
| cis-1,2-Dichloropropene | 20 | < 1 | 17.3 | 19.4 | 11.44 | 91.75 |
| Trichloroethene | 20 | < 1 | 28.2 | 28.2 | 8.88 | 101.88 |
| Dibromochloroethane II | 60 | < 1 | 56.7 | 57.6 | 1.57 | 95.25 |
| Bromochloro | 20 | < 1 | 18.9 | 19.7 | 7.76 | 91.58 |
| 1,1,2,2-Tetrachloroethane III | 40 | < 1 | 43.9 | 43.4 | 1.15 | 129.13 |
| Chlorobenzene | 20 | < 1 | 19.8 | 19.4 | 2.88 | 96.88 |
| 1,3-Dichlorobenzene | 20 | < 1 | 22.8 | 21.8 | 4.48 | 111.58 |
| 1,2-Dichlorobenzene | 20 | < 1 | 23.3 | 22.5 | 3.49 | 114.58 |
| 1,4-Dichlorobenzene | 20 | < 1 | 24.1 | 23.8 | 4.67 | 117.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Gray Jankin

I Coelutes with vinyl chloride

II Coelutes with 1,1,2-trichloroethane and trans-1,3-Dichloropropene

III Coelutes with tetrachloroethene

0000.28

Receiving
Environmental Laboratory

5720 Caterpillar Road
California 95003

916 244 5277

F-849



Engineers
Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 243250-7

Analysis: (1) 502 or () 5020

Matrix: Water

Date Tested: 5-27-1999

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| tert Butyl Methyl Ether | 20 | < 1 | 21.1 | 18.3 | 1.21 | 98.50 |
| Benzene | 20 | < 1 | 22.2 | 19.9 | 3 | 105.35 |
| Toluene | 20 | < 1 | 24.3 | 21.7 | 11.00 | 115.00 |
| Ethyl benzene | 20 | < 1 | 21.8 | 24.1 | 10.02 | 114.75 |
| Xylene | 60 | < 1 | 71.0 | 57.4 | 5.20 | 115.33 |
| Chlorobenzene | 20 | < 1 | 22.0 | 21.0 | 4.65 | 107.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 25.3 | 22.5 | 11.72 | 119.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 23.9 | 22.9 | 4.27 | 117.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 22.0 | 21.9 | 0.46 | 109.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

Greg Jones

2000
California

2090 California Road
California 95003

F-850

000029
516 244 5227



MATRIX SPIKE RESULTS

Laboratory No.: 24372-4

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 10-4-1989

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 18.6 | 16.7 | 10.76 | 88.25 |
| Bromomethane | 20 | < 1 | 20.4 | 20.7 | 1.46 | 102.75 |
| Dichlorodifluoromethane * | 40 | < 1 | 35.3 | 34.7 | 1.71 | 87.50 |
| Chloroethane | 20 | < 1 | 20.3 | 19.8 | 2.49 | 100.25 |
| Methylene chloride | 20 | < 5 | 25.5 | 22.5 | 12.50 | 120.00 |
| Trichlorofluoromethane | 20 | < 1 | 22.0 | 21.3 | 3.23 | 108.25 |
| 1,1-Dichloroethene | 20 | < 1 | 21.1 | 21.2 | 0.47 | 105.75 |
| 1,1-Dichloroethane | 20 | < 1 | 21.1 | 21.2 | 0.47 | 105.75 |
| trans-1,2-Dichloroethene | 20 | < 1 | 21.0 | 21.5 | 2.35 | 106.25 |
| Chloroform | 20 | < 1 | 24.9 | 20.8 | 17.94 | 114.25 |
| 1,2-Dichloroethane | 20 | < 1 | 21.5 | 21.0 | 2.35 | 106.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 21.3 | 21.4 | 0.47 | 106.75 |
| Carbon Tetrachloride | 20 | < 1 | 21.2 | 20.7 | 2.39 | 104.75 |
| Bromodichloromethane | 20 | < 1 | 20.3 | 20.7 | 1.95 | 102.50 |
| 1,2-Dichloropropane | 20 | < 1 | 19.9 | 20.9 | 4.90 | 102.00 |
| trans-1,3-Dichloropropene | 20 | < 1 | 18.0 | 19.3 | 6.97 | 93.25 |
| Trichloroethene | 20 | 62 | 89.4 | 78.5 | 12.98 | 109.75 |
| Dibromochloromethane ** | 60 | < 1 | 56.3 | 57.0 | 1.24 | 94.42 |
| Bromoform | 20 | < 1 | 20.7 | 20.0 | 3.44 | 101.75 |
| 1,1,2,2-Tetrachloroethane *** | 40 | 4 | 37.0 | 39.9 | 7.54 | 86.13 |
| Chlorobenzene | 20 | < 1 | 15.0 | 17.3 | 14.24 | 80.75 |
| 1,3-Dichlorobenzene | 20 | < 1 | 12.2 | 15.9 | 26.33 | 70.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 12.3 | 16.0 | 26.15 | 70.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 12.3 | 15.9 | 25.53 | 70.50 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

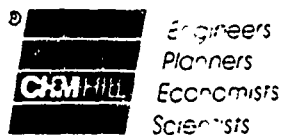
Approved by:

Greg Jordan

* Coelutes with vinyl chloride

** Coelutes with 1,1,2-trichloroethane and trans-1,3-Dichloropropene

*** Coelutes with Tetrachloroethene



MATRIX SPIKE RESULTS

Laboratory No.: 24372-4

Analysis: [1] 502 or [] 8020

Matrix: Water

Date Tested: 10-4-1989

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|-------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| tert Butyl Methyl Ether | 20 | < 1 | 25.8 | 24.5 | 5.17 | 125.75 |
| Benzene | 20 | < 1 | 21.2 | 21.4 | 0.94 | 106.50 |
| Toluene | 20 | < 1 | 28.9 | 22.7 | 8.26 | 109.00 |
| Ethyl Benzene | 20 | < 1 | 26.8 | 28.2 | 5.09 | 137.50 |
| Xylene | 60 | < 1 | 84.6 | 73.2 | 9.44 | 148.33 |
| Chlorobenzene | 20 | < 1 | 22.7 | 24.9 | 9.24 | 119.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 24.5 | 26.8 | 8.97 | 128.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 25.8 | 29.9 | 18.93 | 141.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 28.9 | 24.3 | 15.04 | 113.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Greg Fowler

CHM Hill

Passing
Environmental Laboratory

5090 Caterpillar Road
California 96003

916 244 5227

MATRIX SPIKE RESULTS

Laboratory No.: 24868-1

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 11-23-89

| Compound | Concentration Spiked (PPB) | Sample Result (PPB) | Spike Result (PPB) | Duplicate Spike Result (PPB) | RPD | Spike Percent Recovery |
|---------------------------|----------------------------|---------------------|--------------------|------------------------------|-------|------------------------|
| Chloromethane | 20 | < 1 | 9.6 | 11.7 | 19.72 | 53.25 |
| Bromomethane | 20 | < 1 | 16.0 | 19.7 | 20.73 | 89.25 |
| Dichlorodifluoromethane | 40 | < 1 | 4.0 | 4.6 | 13.95 | 10.75 |
| Vinyl Chloride | 20 | < 1 | 11.6 | 14.5 | 22.22 | 65.25 |
| Chloroethane | 20 | < 1 | 17.1 | 22.2 | 25.95 | 98.25 |
| Methylene chloride | 20 | < 5 | 24.2 | 31.4 | 25.90 | 139.00 |
| Trichlorofluoromethane | 20 | < 1 | 17.4 | 22.4 | 25.13 | 99.50 |
| 1,1-Dichloroethene | 20 | < 1 | 18.8 | 25.6 | 30.63 | 111.00 |
| 1,1-Dichloroethane | 20 | < 1 | 22.9 | 27.9 | 19.69 | 127.00 |
| trans-1,2-Dichloroethene | 20 | < 1 | 21.6 | 26.1 | 18.87 | 119.25 |
| Chloroform | 20 | < 1 | 23.9 | 29.2 | 19.96 | 132.75 |
| 1,2-Dichloroethane | 20 | < 1 | 26.2 | 31.7 | 19.00 | 144.75 |
| 1,1,1-Trichloroethane | 20 | < 1 | 22.1 | 27.4 | 21.41 | 123.75 |
| Carbon Tetrachloride | 20 | < 1 | 21.9 | 26.9 | 20.49 | 122.00 |
| Bromodichloromethane | 20 | < 1 | 24.9 | 29.1 | 15.56 | 135.00 |
| 1,2-Dichloropropane | 20 | < 1 | 24.1 | 30.2 | 22.47 | 135.75 |
| cis-1,3-Dichloropropene | 20 | < 1 | 24.0 | 26.9 | 11.39 | 127.25 |
| Trichloroethene | 20 | < 1 | 28.3 | 31.6 | 11.02 | 129.75 |
| Dibromochloromethane | 60 | < 1 | 25.3 | 30.9 | 19.93 | 46.83 |
| 1,1,2-Trichloroethane | 20 | < 1 | 26.3 | 31.1 | 16.72 | 143.50 |
| cis-1,3-dichloropropene | 20 | < 1 | 23.8 | 27.7 | 15.15 | 128.75 |
| Bromoform | 20 | < 1 | 27.8 | 32.0 | 14.05 | 149.50 |
| 1,1,2,2-Tetrachloroethane | 40 | < 1 | 27.0 | 33.0 | 20.00 | 75.00 |
| Tetrachloroethene | 20 | < 1 | 21.0 | 23.3 | 10.38 | 110.75 |
| Chlorobenzene | 20 | < 1 | 21.2 | 23.6 | 10.71 | 112.00 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.5 | 21.4 | 0.47 | 107.25 |
| 1,2-Dichlorobenzene | 20 | < 1 | 22.7 | 23.1 | 1.75 | 114.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 22.3 | 22.9 | 2.65 | 113.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Grey Jankin



Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 24868-1

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 11-23-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| tert Butyl Methyl Ether | 20 | <20 | -- | -- | ERR | 0.00 |
| Benzene | 20 | <1 | 29.9 | 34.8 | 15.15 | 161.75 |
| Toluene | 20 | <1 | 22.8 | 28.4 | 21.87 | 128.00 |
| Ethyl benzene | 20 | <1 | 21.6 | 23.6 | 8.85 | 113.00 |
| Xylene | 60 | <1 | 65.0 | 70.0 | 7.41 | 112.50 |
| Chlorobenzene | 20 | <1 | 23.3 | 24.0 | 2.96 | 118.25 |
| 1,4-Dichlorobenzene | 20 | <1 | 20.9 | 23.6 | 12.13 | 111.25 |
| 1,3-Dichlorobenzene | 20 | <1 | 21.0 | 23.0 | 9.09 | 110.00 |
| 1,2-Dichlorobenzene | 20 | <1 | 21.5 | 25.6 | 17.41 | 117.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

Greg Joubert

CH2M HILL

Redding Environmental Laboratory, 5090 Caterpillar Road, Redding, California 96003

916.244.5227

MATRIX SPIKE RESULTS

Laboratory No.: 24925-2

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 12-01-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 15.8 | 19.7 | 21.97 | 88.75 |
| Bromomethane | 20 | < 1 | 21.8 | 22.8 | 4.48 | 111.50 |
| Dichlorodifluoromethane | 40 | < 1 | 14.9 | 16.9 | 12.58 | 39.75 |
| Vinyl Chloride | 20 | < 1 | 17.8 | 20.2 | 12.63 | 95.00 |
| Chloroethane | 20 | < 1 | 20.0 | 21.2 | 5.83 | 103.00 |
| Methylene chloride | 20 | < 5 | 20.2 | 23.1 | 13.39 | 108.25 |
| Trichlorofluoromethane | 20 | < 1 | 20.2 | 21.7 | 7.16 | 104.75 |
| 1,1-Dichloroethene | 20 | < 1 | 21.6 | 23.7 | 9.27 | 113.25 |
| 1,1-Dichloroethane | 20 | < 1 | 20.8 | 23.0 | 10.05 | 109.50 |
| trans-1,2-Dichloroethene | 20 | < 1 | 19.7 | 23.3 | 16.74 | 107.50 |
| Chloroform | 20 | < 1 | 20.4 | 21.8 | 6.64 | 105.50 |
| 1,2-Dichloroethane | 20 | < 1 | 21.9 | 21.8 | 0.46 | 109.25 |
| 1,1,1-Trichloroethane | 20 | < 1 | 18.7 | 20.0 | 6.72 | 96.75 |
| Carbon Tetrachloride | 20 | < 1 | 20.4 | 21.0 | 2.90 | 103.50 |
| Bromodichloromethane | 20 | < 1 | 21.1 | 22.3 | 5.53 | 108.50 |
| 1,2-Dichloropropane | 20 | < 1 | 21.2 | 22.3 | 5.06 | 108.75 |
| cis-1,3-Dichloropropene | 20 | < 1 | 20.6 | 22.8 | 10.14 | 108.50 |
| Trichloroethene | 20 | < 1 | 20.4 | 21.0 | 2.90 | 103.50 |
| Dibromochloromethane | 60 | < 1 | 22.0 | 24.1 | 9.11 | 38.42 |
| 1,1,2-Trichloroethane | 20 | < 1 | 21.8 | 24.2 | 10.43 | 115.00 |
| Trans-1,3-Dichloropropene | 20 | < 1 | 21.6 | 23.8 | 9.69 | 113.50 |
| Bromoform | 20 | < 1 | 24.5 | 24.1 | 1.65 | 121.50 |
| 1,1,2,2-Tetrachloroethane | 40 | < 1 | 23.2 | 24.1 | 3.81 | 59.13 |
| Tetrachloroethene | 20 | < 1 | 21.7 | 22.8 | 4.94 | 111.25 |
| Chlorobenzene | 20 | < 1 | 20.6 | 22.4 | 8.37 | 107.50 |
| 1,3-Dichlorobenzene | 20 | < 1 | 21.3 | 22.6 | 5.92 | 109.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 21.0 | 22.9 | 8.66 | 109.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 21.4 | 22.7 | 5.90 | 110.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Greg Jankin

MATRIX SPIKE RESULTS

Laboratory No.: 24925-2

Analysis: [X] 602 or [] 8020

Matrix: Water

Date Tested: 12-01-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| tert Butyl Methyl Ether | 20 | < 20 | --- | --- | ERR | 0.00 |
| Benzene | 20 | < 1 | 19.6 | 19.9 | 1.52 | 98.75 |
| Toluene | 20 | < 1 | 20.7 | 20.8 | 0.48 | 103.75 |
| Ethyl benzene | 20 | < 1 | 20.8 | 20.9 | 0.48 | 104.25 |
| Xylene | 60 | < 1 | 62.8 | 62.4 | 0.64 | 104.33 |
| Chlorobenzene | 20 | < 1 | 20.5 | 20.9 | 1.93 | 103.50 |
| 1,4-Dichlorobenzene | 20 | < 1 | 19.8 | 20.6 | 3.96 | 101.00 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.3 | 20.5 | 0.98 | 102.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 19.9 | 20.8 | 4.42 | 101.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Gray Jankin

MATRIX SPIKE RESULTS

Laboratory No.: 25010-3

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 12-09-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 24.6 | 21.1 | 15.32 | 114.25 |
| Bromomethane | 20 | < 1 | 26.7 | 22.8 | 15.76 | 123.75 |
| Dichlorodifluoromethane | 40 | < 1 | 21.4 | 19.6 | 8.78 | 51.25 |
| Vinyl Chloride | 20 | < 1 | 21.4 | 19.4 | 9.80 | 102.00 |
| Chloroethane | 20 | < 1 | 26.0 | 23.2 | 11.38 | 123.00 |
| Methylene chloride | 20 | < 5 | 30.4 | 27.5 | 10.02 | 144.75 |
| Trichlorofluoromethane | 20 | < 1 | 24.3 | 22.2 | 9.03 | 116.25 |
| 1,1-Dichloroethene | 20 | < 1 | 22.3 | 20.2 | 9.88 | 106.25 |
| 1,1-Dichloroethane | 20 | < 1 | 28.4 | 25.9 | 9.21 | 135.75 |
| trans-1,2-Dichloroethene | 20 | < 1 | 27.1 | 23.5 | 14.23 | 126.50 |
| Chloroform | 20 | < 1 | 24.3 | 23.0 | 5.50 | 118.25 |
| 1,2-Dichloroethane | 20 | < 1 | 41.6 | 41.6 | 0.00 | 208.00 |
| 1,1,1-Trichloroethane | 20 | < 1 | 22.3 | 21.4 | 4.12 | 109.25 |
| Carbon Tetrachloride | 20 | < 1 | 25.3 | 21.7 | 15.32 | 117.50 |
| Bromodichloromethane | 20 | < 1 | 29.4 | 27.7 | 5.95 | 142.75 |
| 1,2-Dichloropropane | 20 | < 1 | 26.5 | 25.0 | 5.83 | 128.75 |
| cis-1,3-Dichloropropene | 20 | < 1 | 21.6 | 20.9 | 3.29 | 106.25 |
| Trichloroethene | 20 | < 1 | 29.5 | 28.2 | 4.51 | 144.25 |
| bromochloromethane | 60 | < 1 | 27.8 | 27.2 | 2.18 | 45.83 |
| 1,1,2-Trichloroethane | 20 | < 1 | 28.5 | 29.6 | 3.79 | 145.25 |
| cis-1,3-dichloropropene | 20 | < 1 | 23.4 | 22.0 | 6.17 | 113.50 |
| Bromoform | 20 | < 1 | 30.4 | 29.7 | 2.33 | 150.25 |
| 1,1,2,2-Tetrachloroethane | 40 | < 1 | 29.7 | 31.3 | 5.25 | 76.25 |
| Tetrachloroethene | 20 | < 1 | 22.1 | 20.6 | 7.03 | 106.75 |
| Chlorobenzene | 20 | < 1 | 23.9 | 21.8 | 9.19 | 114.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 17.7 | 18.2 | 2.79 | 89.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 18.8 | 20.1 | 6.68 | 97.25 |
| 1,4-Dichlorobenzene | 20 | < 1 | 19.1 | 20.0 | 4.60 | 97.75 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Grey Joubert

MATRIX SPIKE RESULTS

Laboratory No.: 25010-3

Analysis: ☒ 602 or ☐ 8020

Matrix: Water

Date Tested: 12-09-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| tert Butyl Methyl Ether | 20 | <1 | 20.6 | 19.6 | 4.98 | 100.50 |
| Benzene | 20 | <1 | 20.1 | 19.4 | 3.54 | 98.75 |
| Toluene | 20 | <1 | 23.2 | 22.1 | 4.86 | 113.25 |
| Ethyl benzene | 20 | <1 | 20.8 | 20.2 | 2.93 | 102.50 |
| Xylene | 60 | <1 | 62.2 | 61.5 | 1.13 | 103.08 |
| Chlorobenzene | 20 | <1 | 22.0 | 21.7 | 1.37 | 109.25 |
| 1,4-Dichlorobenzene | 20 | <1 | 20.9 | 21.0 | 0.48 | 104.75 |
| 1,3-Dichlorobenzene | 20 | <1 | 20.6 | 21.8 | 5.66 | 106.00 |
| 1,2-Dichlorobenzene | 20 | <1 | 20.8 | 22.0 | 5.61 | 107.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

Grey Joubert

MATRIX SPIKE RESULTS

Laboratory No.: 25059-3

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 12-14-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| Chloromethane | 20 | < 1 | 17.1 | 16.0 | 6.65 | 82.75 |
| Bromomethane | 20 | < 1 | 20.3 | 19.9 | 1.99 | 100.50 |
| Dichlorodifluoromethane | 40 | < 1 | 21.9 | 19.9 | 9.57 | 52.25 |
| Vinyl Chloride | 20 | < 1 | 19.2 | 17.7 | 8.13 | 92.25 |
| Chloroethane | 20 | < 1 | 20.5 | 20.1 | 1.97 | 101.50 |
| Methylene chloride | 20 | < 5 | 19.4 | 17.9 | 8.04 | 93.25 |
| Trichlorofluoromethane | 20 | < 1 | 21.1 | 20.2 | 4.36 | 103.25 |
| 1,1-Dichloroethene | 20 | < 1 | 20.6 | 19.2 | 7.04 | 99.50 |
| trans-1,2-Dichloroethene | 20 | < 1 | 23.0 | 21.5 | 6.74 | 111.25 |
| Chloroform | 20 | < 1 | 20.6 | 20.0 | 2.96 | 101.50 |
| 1,2-Dichloroethane | 20 | < 1 | 21.1 | 19.3 | 8.91 | 101.00 |
| 1,1,1-Trichloroethane | 20 | < 1 | 24.1 | 24.0 | 0.42 | 120.25 |
| Carbon Tetrachloride | 20 | < 1 | 20.7 | 18.8 | 9.62 | 98.75 |
| Bromodichloromethane | 20 | < 1 | 20.7 | 20.5 | 0.97 | 103.00 |
| 1,2-Dichloropropane | 20 | < 1 | 21.3 | 20.4 | 4.32 | 104.25 |
| cis-1,3-Dichloropropene | 20 | < 1 | 21.6 | 20.3 | 6.21 | 104.75 |
| Trichloroethene | 20 | < 1 | 19.7 | 19.7 | 0.00 | 98.50 |
| Dibromochloromethane | 60 | < 1 | 22.8 | 21.0 | 8.22 | 109.50 |
| 1,1,2-Trichloroethane | 20 | < 1 | 20.3 | 20.2 | 0.49 | 33.75 |
| Trans-1,3-Dichloropropene | 20 | < 1 | 21.7 | 20.5 | 5.69 | 105.50 |
| Bromoform | 20 | < 1 | 20.5 | 19.6 | 4.49 | 100.25 |
| 1,1,2,2-Tetrachloroethane | 40 | < 1 | 22.7 | 22.4 | 1.33 | 112.75 |
| Tetrachloroethene | 20 | < 1 | 21.1 | 21.6 | 2.34 | 53.38 |
| Chlorobenzene | 20 | < 1 | 21.3 | 20.0 | 6.30 | 103.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.5 | 20.7 | 0.97 | 103.00 |
| 1,2-Dichlorobenzene | 20 | < 1 | 19.2 | 18.7 | 2.64 | 94.75 |
| 1,4-Dichlorobenzene | 20 | < 1 | 20.2 | 19.2 | 5.08 | 98.50 |
| | 20 | < 1 | 20.3 | 19.0 | 6.62 | 98.25 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: John Jordan



Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 25059-3

Analysis: ☒ 602 or ☐ 8020

Matrix: Water

Date Tested: 12-14-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|-------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|------|------------------------------|
| tert Butyl Methyl Ether | 20 | <1 | 18.2 | 19.7 | 7.92 | 94.75 |
| Benzene | 20 | <1 | 19.0 | 19.8 | 4.12 | 97.00 |
| Toluene | 20 | <1 | 19.5 | 20.3 | 4.02 | 99.50 |
| Ethyl benzene | 20 | <1 | 19.5 | 19.9 | 2.03 | 98.50 |
| Xylene | 60 | <1 | 57.5 | 59.0 | 2.58 | 97.08 |
| Chlorobenzene | 20 | <1 | 18.5 | 19.2 | 3.71 | 94.25 |
| 1,4-Dichlorobenzene | 20 | <1 | 20.0 | 19.2 | 4.08 | 98.00 |
| 1,3-Dichlorobenzene | 20 | <1 | 19.1 | 18.9 | 1.05 | 95.00 |
| 1,2-Dichlorobenzene | 20 | <1 | 19.3 | 19.9 | 3.06 | 98.00 |

Precision:

$$RPD = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by:

Greg Joubert



Engineers
Planners
Economists
Scientists

MATRIX SPIKE RESULTS

Laboratory No.: 25189-2

Analysis: [] 601 or [X] 8010

Matrix: Water

Date Tested: 12-23-89

| Compound | Concentration
Spiked (PPB) | Sample
Result (PPB) | Spike
Result (PPB) | Duplicate Spike
Result (PPB) | RPD | Spike
Percent
Recovery |
|---------------------------|-------------------------------|------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Chloromethane | 20 | < 1 | 15.0 | 15.2 | 5.13 | 78.00 |
| Bromomethane | 20 | < 1 | 19.6 | 17.8 | 9.63 | 93.50 |
| Dichlorodifluoromethane | 40 | < 1 | 17.7 | 15.5 | 13.25 | 41.50 |
| Vinyl Chloride | 20 | < 1 | 16.8 | 15.6 | 7.41 | 81.00 |
| Chloroethane | 20 | < 1 | 20.6 | 19.1 | 7.56 | 99.25 |
| Methylene chloride | 20 | < 5 | 18.8 | 18.3 | 2.70 | 92.75 |
| Trichlorofluoromethane | 20 | < 1 | 22.0 | 20.5 | 7.06 | 106.25 |
| 1,1-Dichloroethene | 20 | < 1 | 22.4 | 20.1 | 10.82 | 106.25 |
| 1,1-Dichloroethane | 20 | < 1 | 22.6 | 21.7 | 4.06 | 110.75 |
| trans-1,2-Dichloroethene | 20 | < 1 | 22.0 | 21.0 | 4.65 | 107.50 |
| Chloroform | 20 | < 1 | 22.2 | 19.6 | 12.44 | 104.50 |
| 1,2-Dichloroethane | 20 | < 1 | 23.8 | 20.8 | 13.45 | 111.50 |
| 1,1,1-Trichloroethane | 20 | < 1 | 21.5 | 18.3 | 16.08 | 99.50 |
| Carbon Tetrachloride | 20 | < 1 | 21.7 | 19.2 | 12.22 | 102.25 |
| Bromodichloromethane | 20 | < 1 | 22.9 | 20.6 | 10.57 | 108.75 |
| 1,2-Dichloropropane | 20 | < 1 | 23.8 | 21.3 | 11.09 | 112.75 |
| cis-1,3-Dichloropropene | 20 | < 1 | 18.2 | 16.5 | 9.80 | 86.75 |
| Trichloroethene | 20 | < 1 | 24.1 | 20.9 | 14.22 | 112.50 |
| Dibromochloromethane | 60 | < 1 | 22.6 | 20.2 | 11.21 | 35.67 |
| 1,1,2-Trichloroethane | 20 | < 1 | 22.7 | 20.1 | 12.15 | 107.00 |
| Trans-1,3-Dichloropropene | 20 | < 1 | 18.6 | 17.6 | 5.52 | 90.50 |
| Bromoform | 20 | < 1 | 23.0 | 22.9 | 0.44 | 114.75 |
| 1,1,2,2-Tetrachloroethane | 40 | < 1 | 22.7 | 24.4 | 7.22 | 58.88 |
| Tetrachloroethene | 20 | < 1 | 22.7 | 19.9 | 13.15 | 106.50 |
| Chlorobenzene | 20 | < 1 | 23.5 | 20.6 | 13.15 | 110.25 |
| 1,3-Dichlorobenzene | 20 | < 1 | 20.7 | 21.2 | 2.39 | 104.75 |
| 1,2-Dichlorobenzene | 20 | < 1 | 20.9 | 21.5 | 2.83 | 106.00 |
| 1,4-Dichlorobenzene | 20 | < 1 | 20.0 | 20.2 | 1.00 | 100.50 |

Precision:

$$\text{RPD} = \frac{\text{Spike Result} - \text{Duplicate Spike Result}}{\text{Spike Result} + \text{Duplicate Spike Result}} \times 200$$

Accuracy:

$$\text{Percent Recovery} = \frac{\text{Mean Spike Result} - \text{Sample Result}}{\text{Concentration Spiked}} \times 100$$

Comments:

Approved by: Gray Jordan

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Volatile Organic Compounds (SW8240)

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21582-4MS
CLIENT SAMPLE ID : BAFB-0004-18-C-4SS
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-16-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-15-88
DATE EXTRACTED :
DATE ANALYSED : 11-18-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 38 benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 25 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 28 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 36 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 43 toluene |
| 5U 1,2-dichloroethane | 42 chlorobenzene |
| 10U 2-butanone | 43 ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 35 xylenes (o+m) |
| 10U vinyl acetate | 30 xylene (p) |
| 5U bromodichloroethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 97 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 98 toluene-d8 (SS2) |
| 36 trichloroethene | 110 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian G. Hays

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21582-4MSD
CLIENT SAMPLE ID : BAFB-0004-18-C-455
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-16-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-15-88
DATE EXTRACTED :
DATE ANALYSED : 11-18-88

| | |
|-----------------------------|---------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 40 benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 29 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 31 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 37 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 62 toluene |
| 5U 1,2-dichloroethane | 48 chlorobenzene |
| 10U 2-butanone | 7 ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 1 RECOVERY |
| 5U 1,2-dichloropropane | 102 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 113 toluene-d8 (SS2) |
| 37 trichloroethene | 151 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian J. Hines

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

D
C-455

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21621-12MS
CLIENT SAMPLE ID : BAFB-0016
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-18-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-17-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 11-28-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 45 benzene |
| 10U chloroethane | 3J trans-1,3-dichloropropene |
| 7 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 8J acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 40 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 56 toluene |
| 5U 1,2-dichloroethane | 46 chlorobenzene |
| 6J 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE 2 RECOVERY |
| 5U 1,2-dichloropropane | 87 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 99 toluene-d8 (SS2) |
| 48 trichloroethene | 150 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian R. K...

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
22 RAILROAD AVENUE
SPRINGFIELD, MO 65801 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21621-12MSD
CLIENT SAMPLE ID : BAFB-0016
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-18-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-17-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 11-28-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | 5U dibromochloromethane |
| 10U bromomethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 7 benzene |
| 10U chloroethane | 10J trans-1,3-dichloropropene |
| 4J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 44 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-trichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 58 toluene |
| 5U 1,2-dichloroethane | 46 chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 89 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 103 toluene-d8 (SS2) |
| 43 trichloroethene | 150 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

B. J. Smith

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21645-4MS
CLIENT SAMPLE ID : 8AFB-0043-18-C-29SS
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-21-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 11-29-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 34 benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 4J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 47 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 49 toluene |
| 5U 1,2-dichloroethane | 50 chlorobenzene |
| 10U 2-butanone | 12 ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 20 xylenes (o+m) |
| 10U vinyl acetate | 9 xylene (p) |
| 5U bromodichloroethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 86 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 102 toluene-d8 (SS2) |
| 34 trichloroethene | 126 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian M. ...

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21645-4MSD
CLIENT SAMPLE ID : BAFB-0043-18-C-2955
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-21-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 11-29-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 36 benzene |
| 10U chloroethane | 3J trans-1,3-dichloropropene |
| 5J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10J acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 52 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 53 toluene |
| 5U 1,2-dichloroethane | 52 chlorobenzene |
| 10U 2-butanone | 12 ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 15 xylenes (ota) |
| 10U vinyl acetate | 7 xylene (p) |
| 5U bromodichloroethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 89 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | toluene-d8 (SS2) |
| 36 trichloroethene | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Moore

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEN HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1775

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21654-JMS
CLIENT SAMPLE ID : 9AFB-0052-18-C-3633
REPORT DATE : 12-13-1999

CLIENT NAME : DEALE AFB
SAMPLE RECEIVED : 11-22-99
SAMPLE TYPE : SOIL/SEDIMENT SOLIDS

DATE SAMPLED : 11-21-99
DATE EXTRACTED : 11-26-99
DATE ANALYSED : 11-30-99

| | |
|-----------------------------|--------------------------------|
| 12U chloroethane | 6U dibromochloroethane |
| 12U bromoethane | 6U 1,1,2-trichloroethane |
| 12U vinyl chloride | 42 benzene |
| 12U chloroethane | 6U trans-1,3-dichloropropene |
| 9 methylene chloride | 12U 2-chloroethyl vinyl ether |
| 12U acetone | 6U bromoform |
| 6U carbon disulfide | 12U 4-methyl-2-pentanone |
| 46 1,1-dichloroethane | 12U 2-hexanone |
| 6U 1,1-dichloroethane | 6U 1,1,2,2-tetrachloroethane |
| 6U trans-1,2-dichloroethene | 6U tetrachloroethene |
| 6U chloroform | 53 toluene |
| 6U 1,2-dichloroethane | 58 chlorobenzene |
| 12U 2-butanone | 6U ethylbenzene |
| 6U 1,1,1-trichloroethane | 6U styrene |
| 6U carbon tetrachloride | 6U xylenes (ota) |
| 12U vinyl acetate | 6U xylene (p) |
| 6U bromodichloroethane | SURROGATE 1 RECOVERY |
| 6U 1,2-dichloropropane | 98 1,2-dichloroethane-d4 (SS1) |
| 6U cis-1,3-dichloropropene | 99 toluene-d8 (SS2) |
| 57 trichloroethene | 78 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEN HILL ENVIRONMENTAL LABORATORY
2212 RAILROAD AVENUE
REDDING CA 96001 916-243-1705

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21654-JMSD
CLIENT SAMPLE ID : BAFB-0052-15-C-3655
REPORT DATE : 12-13-1988

CLIENT NAME : SENLE AFB
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-21-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 11-30-88

| | | | |
|-----|--------------------------|-----|-----------------------------|
| 12U | chloroethane | 6J | ditrochloroethane |
| 12U | bromoethane | 6U | 1,1,2-trichloroethane |
| 12U | vinyl chloride | 5I | benzene |
| 12U | chloroethane | 4J | trans-1,3-dichloropropene |
| 12 | methylene chloride | 12U | 2-chloroethyl vinyl ether |
| 12U | acetone | 6U | bromoform |
| 6U | carbon disulfide | 12U | 4-methyl-2-pentanone |
| 5I | 1,1-dichloroethane | 12U | 2-hexanone |
| 6U | 1,1-dichloroethane | 6U | 1,1,2,2-tetrachloroethane |
| 6U | trans-1,2-dichloroethene | 6U | tetrachloroethene |
| 6U | chloroform | 57 | toluene |
| 6U | 1,2-dichloroethane | 6I | chlorobenzene |
| 12U | 2-butanone | 6U | ethylbenzene |
| 6U | 1,1,1-trichloroethane | 6U | styrene |
| 6U | carbon tetrachloride | 6U | xylenes (o-m) |
| 12U | vinyl acetate | 6U | xylene (p) |
| 6U | bromodichloroethane | | SURROGATE 1 RECOVERY |
| 6U | 1,2-dichloropropane | 7C | 1,2-dichloroethane-d4 (SS1) |
| 6U | cis-1,3-dichloropropene | 102 | toluene-d8 (SS2) |
| 6J | trichloroethene | 9C | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

. = indicates the compound was analysed for, but not detected.

The numerical value preceding "J" is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21639-BMS
CLIENT SAMPLE ID : BAFB-0063-2-C-6SS
REPORT DATE : 12-17-1988

CLIENT NAME : SEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-22-88
DATE EXTRACTED : 1-26-89
DATE ANALYSED : 12-5-88

| | |
|-----------------------------|--------------------------------|
| 10U chloromethane | 5U dibromochloromethane |
| 10U bromomethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 41 benzene |
| 10U chloroethane | 3J trans-1,3-dichloropropene |
| 4J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 41 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 43 toluene |
| 5U 1,2-dichloroethane | 46 chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE % RECOVERY |
| 5U 1,2-dichloropropane | 90 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 93 toluene-d8 (SS2) |
| 52 trichloroethene | 79 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Miller

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21659-QMSD
CLIENT SAMPLE ID : DAFB-0063-2-C-655
REPORT DATE : 12-17-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-22-88
DATE EXTRACTED : 11-26-88
DATE ANALYSED : 12-5-88

10U chloroethane
10U bromoethane
10U vinyl chloride
10U chloroethane
4J methylene chloride
10U acetone
5U carbon disulfide
41 1,1-dichloroethene
5U 1,1-dichloroethane
5U trans-1,2-dichloroethene
5U chloroform
5U 1,2-dichloroethane
10U 2-butanone
5U 1,1,1-trichloroethane
5U carbon tetrachloride
10U vinyl acetate
5U bromodichloroethane
5U 1,2-dichloropropane
5U cis-1,3-dichloropropene
52 trichloroethene

5U dibromochloroethane
5U 1,1,2-trichloroethane
41 benzene
3J trans-1,3-dichloropropene
10U 2-chloroethyl vinyl ether
5U bromoform
10U 4-ethyl-2-pentanone
10U 2-hexanone
5U 1,1,2,2-tetrachloroethane
5U tetrachloroethene
52 toluene
47 chlorobenzene
5U ethylbenzene
5U styrene
5U xylenes (o+m)
5U xylene (p)
SURROGATE 2 RECOVERY
104 1,2-dichloroethane-d4 (SS1)
113 toluene-d8 (SS2)
96 bromofluorobenzene (SS3)

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Allen

APPROVED BY :

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21716-7MS
CLIENT SAMPLE ID : 0132 C3LSS
REPORT DATE : 01-22-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-30-88
DATE EXTRACTED :
DATE ANALYSED : 12-14-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 44 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 8 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| 3J carbon disulfide | 10U 4-methyl-2-pentanone |
| 3J 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 47 toluene |
| SU 1,2-dichloroethane | 49 chlorobenzene |
| 7J 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (ota) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 96 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| 47 trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21716-7MSD
CLIENT SAMPLE ID : 0132 C3LSS
REPORT DATE : 01-22-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-30-88
DATE EXTRACTED :
DATE ANALYSED : 12-14-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 43 benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 8 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | 5U bromoform |
| 3J carbon disulfide | 10U 4-ethyl-2-pentanone |
| 34 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 44 toluene |
| 5U 1,2-dichloroethane | 47 chlorobenzene |
| 6J 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+s) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 2 RECOVERY |
| 5U 1,2-dichloropropane | 95 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| 45 trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2216 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21771-ZMS
CLIENT SAMPLE ID : 0111
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-15-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 46 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 22 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 410 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| 58 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 64 toluene |
| SU 1,2-dichloroethane | 50 chlorobenzene |
| 10U 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE % RECOVERY |
| SU 1,2-dichloropropane | 91 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 108 toluene-d8 (SS2) |
| 48 trichloroethane | 91 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21771-2MSD
CLIENT SAMPLE ID : 0111
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-8-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-7-88
DATE EXTRACTED :
DATE ANALYSED : 12-15-89

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 44 benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 13 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 130 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 37 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 60 toluene |
| 5U 1,2-dichloroethane | 49 chlorobenzene |
| 10U 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 1 RECOVER |
| 5U 1,2-dichloropropane | 76 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 109 toluene-d8 (SS2) |
| 46 trichloroethene | 87 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEM HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21786-3MS
CLIENT SAMPLE ID : 0124
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHEM HILL/SAC
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-8-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|---------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 46 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 7 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 28 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| SU 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 46 toluene |
| SU 1,2-dichloroethane | 46 chlorobenzene |
| 12 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 2 RECOVERY |
| SU 1,2-dichloropropane | 133 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 103 toluene-d8 (SS2) |
| 40 trichloroethene | 146 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHCM HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21786-JMSD
CLIENT SAMPLE ID : 0124
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CHCM HILL/SAC
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-8-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | dibromochloroethane |
| 10U bromoethane | 1,1,2-trichloroethane |
| 10U vinyl chloride | benzene |
| 10U chloroethane | U trans-1,3-dichloropropene |
| 4J methylene chloride | 10U 2-chloroethyl vinyl ether |
| 19 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 33 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 45 toluene |
| 5U 1,2-dichloroethane | 45 chlorobenzene |
| 10J 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (ota) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SUBSTRATE RECOVERY |
| 3U 1,2-dichloropropane | 96 1,1-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 100 benzene-d8 (SS2) |
| 43 trichloroethene | 92 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21789-SMS
CLIENT SAMPLE ID : 0162
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-9-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 35 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| SU ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 58 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-ethyl-2-pentanone |
| 31 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 41 toluene |
| SU 1,2-dichloroethane | 40 chlorobenzene |
| 14 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE 1 RECOVERY |
| SU 1,2-dichloropropane | 90 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 99 toluene-d8 (SS2) |
| 37 trichloroethene | 90 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 12789-SMSD
CLIENT SAMPLE ID : 0168
REPORT DATE : 01-23-1989

CLIENT NAME : SEALE AFB CHICK HILL/S4C
SAMPLE RECEIVED : 12-9-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-9-88
DATE EXTRACTED :
DATE ANALYSED : 12-19-88

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 4U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 5U ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 55 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 33 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 45 toluene |
| 5U 1,2-dichloroethane | 44 chlorobenzene |
| 13 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (ota) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloromethane | SURROGATE Z RECOVERY |
| 5U 1,2-dichloropropane | 91 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 43 trichloroethene | 91 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21847-7MS
CLIENT SAMPLE ID : 0266
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-14-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-13-88
DATE EXTRACTED :
DATE ANALYSED : 12-22-88

| | |
|------------------------------|---------------------------------|
| 50U chloroethane | 25U dibromochloroethane |
| 50U bromoethane | 25U 1,1,2-trichloroethane |
| 50U vinyl chloride | 230 benzene |
| 50U chloroethane | 25U trans-1,3-dichloropropene |
| 27 methylene chloride | 50U 2-chloroethyl vinyl ether |
| 95 acetone | 25U bromoform |
| 25U carbon disulfide | 50U 4-methyl-2-pentanone |
| 180 1,1-dichloroethene | 50U 2-hexanone |
| 25U 1,1-dichloroethane | 25U 1,1,2,2-tetrachloroethane |
| 25U trans-1,2-dichloroethene | 25U tetrachloroethene |
| 25U chloroform | 260 toluene |
| 25U 1,2-dichloroethane | 240 chlorobenzene |
| 55 2-butanone | 25U ethylbenzene |
| 25U 1,1,1-trichloroethane | 25U styrene |
| 25U carbon tetrachloride | 25U xylenes (o+m) |
| 50U vinyl acetate | 25U xylene (p) |
| 25U bromodichloroethane | SURROGATE % RECOVERY |
| 25U 1,2-dichloropropane | 103 1,2-dichloroethane-d4 (SS1) |
| 25U cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 230 trichloroethene | 98 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

WESTON ANALYTICS
7700 COPRAINE AV. #105
STOCKTON CA 95210 209 957-2405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8812S073-02MS
CLIENT SAMPLE ID : 21848-3(MS)
REPORT DATE : 01-13-1989

CLIENT NAME : CH2M HILL
FILE ID : 88M1V03548
BLANK ID : 88M1V03542
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/13/88
DATE RECEIVED : 12/20/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/20/88

| | | | |
|------|----------------------------|------|---------------------------|
| 13 U | chloroethane | 7 U | di-bromochloroethane |
| 13 U | bromoethane | 7 U | 1,1,2-trichloroethane |
| 13 U | vinyl chloride | 54 | benzene |
| 13 U | chloroethane | 7 U | trans-1,3-dichloropropene |
| 13 | ethylene chloride | 13 U | 2-chloroethyl vinyl ether |
| 30 | acetone | 7 U | bromoform |
| 7 U | carbon disulfide | 13 U | 4-ethyl-2-pentanone |
| 21 | 1,1-dichloroethene | 13 U | 2-hexanone |
| 7 U | 1,1-dichloroethane | 7 U | 1,1,2,2-tetrachloroethane |
| 7 U | 1,2-dichloroethene (total) | 7 U | tetrachloroethane |
| 7 U | chloroform | 29 | toluene |
| 7 U | 1,2-dichloroethane | 57 | chlorobenzene |
| 13 U | 2-butanone | 7 U | ethylbenzene |
| 7 U | 1,1,1-trichloroethane | 7 U | styrene |
| 7 U | carbon tetrachloride | 7 U | xlenes (o-m) |
| 13 U | vinyl acetate | 7 U | xylene (p) |
| 7 U | monochloroethane | | |
| 7 U | 1,2-dichloropropane | | |
| 7 U | cis-1,3-dichloropropene | | |
| 52 | trichloroethene | | |

SURROGATE & RECOVERY
79 1,2-dichloroethane-d4 (SS1)
39 toluene-d8 (SS2)
28 bromofluorobenzene (SS3)

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 24

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E : indicates an estimated trace value.

ANALYST : ALi

APPROVED BY : R.F. Loney

F-881

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8812S072-02MS0
CLIENT SAMPLE ID : 21848-3(MSD)
REPORT DATE : 01-13-1989

1 NAME : CH2M HILL
FILE ID : 88M1V03549
BLANK ID : 88M1V03542
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/13/88
DATE RECEIVED : 12/20/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/20/88

| | | | |
|------|----------------------------|----------------------|------------------------------|
| 13 U | chloromethane | 7 U | dibromochloromethane |
| 13 U | bromomethane | 7 U | 1,1,2-trichloroethane |
| 13 U | vinyl chloride | 51 | benzene |
| 13 U | chloroethane | 7 U | trans-1,3-dichloropropene |
| 110 | ethylene chloride | 13 U | 2-chloroethyl vinyl ether |
| 17 | acetone | 7 U | bromoforn |
| 7 U | carbon disulfide | 13 U | 4-methyl-2-pentanone |
| 78 | 1,1-dichloroethene | 13 U | 2-hexanone |
| 7 U | 1,1-dichloroethane | 7 U | 1,1,2,2-tetrachloroethane |
| 7 U | 1,2-dichloroethene (total) | 7 U | tetrachloroethene |
| 7 U | chloroform | 80 | toluene |
| 7 U | 1,2-dichloroethane | 57 | chlorobenzene |
| 13 U | 2-butanone | 7 U | ethylbenzene |
| 7 U | 1,1,1-trichloroethane | 7 U | styrene |
| 7 U | carbon tetrachloride | 7 U | xylenes o-p |
| 13 U | vinyl acetate | 7 U | xylenes m |
| 7 U | bromodichloromethane | SURROGATE & RECOVER: | |
| 7 U | 1,2-dichloropropane | 13 | 1,2-dichloroethane-d4 (SS) ✓ |
| 7 U | cis-1,2-dichloropropene | 98 | toluene-d8 (SS2) |
| 51 | trichloroethene | 92 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 24

- U : indicates the compound was analysed for, but not detected.
The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.
E : indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carney

F-882

WESTON ANALYTICS
2229 LORRAINE AVE, SUITE 102
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 89C15003-0-MS
CLIENT SAMPLE ID : 21920-7MS
REPORT DATE : 01-14-1999

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 89MIV0003
SAMPLE TYPE : SOIL/SEDIMENT SOLIDS

DATE SAMPLED : 12/20/89
DATE RECEIVED : 01/03/99
DATE EXTRACTED : NA
DATE ANALYSED : 01/03/99

| | | | |
|------|-----------------------------|------------------------|-------------------------------|
| 13 U | chloromethane | 6 U | di bromochloromethane |
| 13 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 13 U | vinyl chloride | 57 | benzene |
| 13 U | chloroethane | 6 U | trans-1,2-dichlorocyclohexane |
| 53 | methylene chloride | 13 U | 2-chloroethyl vinyl ether |
| 13 | acetone | 6 U | bromoforn |
| 6 U | carbon disulfide | 13 U | 4-methyl-2-pentanone |
| 53 | 1,1-dichloroethene | 13 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethane (total) | 6 U | tetrachloroethane |
| 6 U | chloroform | 58 | toluene |
| 6 U | 1,2-dichloroethane | 52 | chlorobenzene |
| 13 | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylene o-p |
| 13 U | vinyl acetate | 6 U | xylene m |
| 6 U | bromochloromethane | 6 U | xylene p |
| 6 U | 1,2-dichloropropane | 5. PROSTATE & RECOVERY | |
| 6 U | cis-1,2-dichlorocyclohexane | 91 | 1,2-dichloroethane-d4 (SS) |
| 54 | trichloroethane | 101 | toluene-d8 (SS) |
| | | 114 | bromochlorobenzene (SS) |

RESULTS UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 21

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E : indicates an estimated trace value.

ANALYST

ALI

F-883

APPROVED BY

P. F. Casey

WESTON ANALYTICS
7720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8901SC03-01VSC
CLIENT SAMPLE ID : 21920-7/MSD
REPORT DATE : 01-14-1989

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 89M1V0003
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/20/88
DATE RECEIVED : 01/03/89
DATE EXTRACTED : NA
DATE ANALYSED : 01/03/89

| | | | |
|------|------------------------------|-----------------------|--------------------------------|
| 13 U | chloromethane | 6 U | chlorobromochloromethane |
| 13 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 13 U | vinyl chloride | 59 | benzene |
| 13 U | chloroethane | 6 U | trans-1,3-dichlorocyclopentane |
| 55 | ethylene chloride | 13 U | 2-chloroethyl vinyl ether |
| 9 U | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 13 U | 4-methyl-2-pentanone |
| 59 | 1,1-dichloroethane | 13 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethane (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | 6 U | toluene |
| 6 U | 1,2-dichloroethane | 52 | chlorobenzene |
| 13 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylene (o-x) |
| 13 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | propdichloroethane | 5, PROGATE X RECOVERY | |
| 6 U | 1,2-dichloropropane | 30 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichlorocyclopentane | 53 | toluene-d8 (SS2) |
| 52 | trichloroethene | 67 | bromochlorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 21

. = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
. = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R. F. Conner

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21847-7MSD
CLIENT SAMPLE ID : 0266
REPORT DATE : 01-23-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-14-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-13-88
DATE EXTRACTED :
DATE ANALYSED : 12-22-88

| | | | |
|-----|--------------------------|-----|-----------------------------|
| 50U | chloroethane | 25U | dibromochloroethane |
| 50U | bromoethane | 25U | 1,1,2-trichloroethane |
| 50U | vinyl chloride | 210 | benzene |
| 50U | chloroethane | 25U | trans-1,3-dichloropropene |
| 21J | ethylene chloride | 50U | 2-chloroethyl vinyl ether |
| 62 | acetone | 25U | bromoform |
| 25U | carbon disulfide | 50U | 4-methyl-2-pentanone |
| 180 | 1,1-dichloroethene | 50U | 2-hexanone |
| 25U | 1,1-dichloroethane | 25U | 1,1,2,2-tetrachloroethane |
| 25U | trans-1,2-dichloroethene | 25U | tetrachloroethene |
| 25U | chloroform | 260 | toluene |
| 25U | 1,2-dichloroethane | 250 | chlorobenzene |
| 27J | 2-butanone | 25U | ethylbenzene |
| 25U | 1,1,1-trichloroethane | 25U | styrene |
| 25U | carbon tetrachloride | 25U | xlenes (o+m) |
| 50U | vinyl acetate | 25U | xylene (p) |
| 25U | bromodichloroethane | | SURROGATE 1 RECOVERY |
| 25U | 1,2-dichloropropane | 104 | 1,2-dichloroethane-d4 (SS1) |
| 25U | cis-1,3-dichloropropene | 102 | toluene-d8 (SS2) |
| 220 | trichloroethene | 103 | bromofluorobenzene (SS3) |

RESULTS UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

C-CH HILL ENVIRONMENTAL LABORATORY
2215 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21672-12MS
CLIENT SAMPLE ID : 0257-13
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-16-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-15-88
DATE EXTRACTED :
DATE ANALYSED : 12-29-88

| | |
|-----------------------------|---------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | SS benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 13 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 10U acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| 68 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | SS toluene |
| SU 1,2-dichloroethane | SS chlorobenzene |
| 6J 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloroethane | SURROGATE % RECOVERY |
| SU 1,2-dichloropropane | 120 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 107 toluene-d8 (SS2) |
| SS trichloroethene | 131 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

J = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHEN HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING, CA 96001 916-240-1735

SOILS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21672-12MSD
CLIENT SAMPLE ID : 0257-13
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CHEN HILL/SAC
SAMPLE RECEIVED : 12-15-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-15-88
DATE EXTRACTED :
DATE ANALYSED : 12-29-88

| | |
|-----------------------------|---------------------------------|
| 10U chloromethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 49 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 10 methylene chloride | 10U 2-chloroethyl vinyl ether |
| 11 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-methyl-2-pentanone |
| 55 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,2,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 48 toluene |
| SU 1,2-dichloroethane | 46 chlorobenzene |
| 50 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o-m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SUPROGATE 2 RECOVERY |
| SU 1,2-dichloropropane | 108 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichlorobenzene | 100 toluene-d8 (SS2) |
| 45 trichloroethene | 106 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
1019 FAIRROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : ER 1-12-89
CLIENT SAMPLE ID : METHOD BLANK 1-12-89
REPORT DATE : 01-25-1989

CLIENT NAME : BEALE AFB CHICK HILL SAC
SAMPLE RECEIVED :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE EXTRACTED :
DATE ANALYSED : 1-12-89

| | |
|-----------------------------|--------------------------------|
| 100 chloroethane | 50 dibromochloroethane |
| 100 bromoethane | 50 1,1,2-trichloroethane |
| 100 vinyl chloride | 50 benzene |
| 100 chloroethane | 50 trans-1,3-dichloropropene |
| 16 ethylene chloride | 100 2-chloroethyl vinyl ether |
| 42 acetone | 50 bromoform |
| 42 carbon disulfide | 100 4-methyl-2-pentanol |
| 50 1,1-dichloroethane | 100 2-hexanone |
| 50 1,1-dichloroethane | 50 1,1,2,2-tetrachloroethane |
| 50 trans-1,2-dichloroethene | 50 tetrachloroethane |
| 50 chloroform | 50 toluene |
| 50 1,2-dichloroethane | 50 chlorobenzene |
| 100 2-butanone | 50 ethylbenzene |
| 50 1,1,1-trichloroethane | 50 styrene |
| 50 carbon tetrachloride | 50 xylenes (total) |
| 100 vinyl acetate | 50 xylene (p) |
| 50 bromodichloroethane | SUPPLEMENT 2 RECOVERY |
| 50 1,2-dichloropropane | 75 1,2-dichloroethane-d4 (SS1) |
| 50 cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 50 trichloroethane | 100 bromofluorobenzene (SS3) |

RESULTS UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHUM HILL ENVIRONMENTAL LABORATORY
2019 FAIRFORD AVENUE
REDDING, CA 96001 916-241-1725

GC/MS VOLATILE ORGANICS ANALYSIS

LOG REFERENCE NUMBER : 01777-1-MS
CLIENT SAMPLE ID : 0761
REPORT DATE : 01-25-1997

CLIENT NAME : BEALE AFB CHUM HILL SOC
SAMPLE RECEIVED : 1-4-97
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 1-1-97
DATE EXTRACTED : 1-11-97
DATE ANALYSED : 1-17-97

| | | | |
|-------|--------------------------|-----------------------|-----------------------------|
| 1300U | chloroethane | 670U | diisoochloroethane |
| 170-U | bromoethane | 670U | 1,1,2-trichloroethane |
| 170-U | vinyl chloride | 670U | benzene |
| 170-U | chloroethane | 670U | trans-1,2-dichloropropene |
| 310U | ethylene chloride | 1300U | 2-chloroethyl vinyl ether |
| 290U | acetone | 670U | bromoflors |
| 440U | carbon disulfide | 1300U | 4-ethyl-2-pentanone |
| 670U | 1,1-dichloroethene | 1300U | 2-hexanone |
| 670U | 1,1-dichloroethane | 670U | 1,1,1,2-tetrachloroethane |
| 670U | trans-1,2-dichloroethane | 670U | tetrachloroethane |
| 670U | chloroflors | 670U | toluene |
| 670U | 1,2-dichloroethane | 670U | chlorobenzene |
| 1600 | 2-butanone | 670U | ethylbenzene |
| 670U | 1,1,1-trichloroethane | 670U | styrene |
| 670U | carbon tetrachloride | 670U | xlenes (o+s) |
| 170U | vinyl acetate | 670U | ylene (p) |
| 670U | bromodichloroethane | SUSPENSATE 1 RECOVERY | |
| 670U | 1,2-dichloropropane | 99 | 1,2-dichloroethane-d4 (991) |
| 670U | cis-1,3-dichloropropene | 99 | toluene-d8 (992) |
| 670U | trichloroethene | 110 | bromofluorotoluene (993) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
2018 RAILROAD AVENUE
REDDING CA 96001 916-243-1775

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21979-1-0030
CLIENT SAMPLE ID : 0361
REPORT DATE : 01-25-1989

CLIENT NAME : BEALE AFB CHICK HILL/34C
SAMPLE RECEIVED : 1-4-89
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 1-7-89
DATE EXTRACTED : 1-11-89
DATE ANALYSED : 1-12-89

| | | | |
|-------|--------------------------|----------------------|-----------------------------|
| 1300U | chloroethane | 630U | dibromochloroethane |
| 1300U | bromoethane | 630U | 1,1,2-trichloroethane |
| 1300U | vinyl chloride | 630U | benzene |
| 1300U | chloroethane | 630U | trans-1,3-dichloropropene |
| 4700 | ethylene chloride | 1300U | 2-chloroethyl vinyl ether |
| 2300 | acetone | 630U | bromoform |
| 300U | carbon disulfide | 1300U | 4-methyl-2-pentanone |
| 630U | 1,1-dichloroethane | 1300U | 2-hexanone |
| 630U | 1,1-dichloroethane | 630U | 1,1,2,2-tetrachloroethane |
| 630U | trans-1,2-dichloroethane | 630U | tetrachloroethane |
| 630U | chloroform | 660U | toluene |
| 630U | 1,2-dichloroethane | 630U | chlorobenzene |
| 1300 | 2-butanone | 630U | ethylbenzene |
| 630U | 1,1,1-trichloroethane | 630U | styrene |
| 630U | carbon tetrachloride | 630U | xylene (o) |
| 1300U | vinyl acetate | 630U | xylene (p) |
| 630U | bromodichloroethane | SURROGATE & RECOVERY | |
| 630U | 1,2-dichloropropane | 100 | 1,2-dichloroethane-d4 (SS1) |
| 630U | cis-1,3-dichloropropene | 99 | toluene-d9 (SS2) |
| 5500 | trichloroethene | 109 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2215 RAILROAD AVENUE
FEDDING CA 95001 916-243-1773

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 20057-TM
CLIENT SAMPLE ID : 0321
REPORT DATE : 01-26-1999

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 1-11-99
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 1-11-99
DATE EXTRACTED :
DATE ANALYSED : 1-17-99

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | SU dibromochloroethane |
| 10U bromoethane | SU 1,1,2-trichloroethane |
| 10U vinyl chloride | 47 benzene |
| 10U chloroethane | SU trans-1,3-dichloropropene |
| 12 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 26 acetone | SU bromoform |
| SU carbon disulfide | 10U 4-ethyl-2-pentanone |
| 47 1,1-dichloroethene | 10U 2-hexanone |
| SU 1,1-dichloroethane | SU 1,1,1,2-tetrachloroethane |
| SU trans-1,2-dichloroethene | SU tetrachloroethene |
| SU chloroform | 66 toluene |
| SU 1,2-dichloroethane | 48 chlorobenzene |
| 26 2-butanone | SU ethylbenzene |
| SU 1,1,1-trichloroethane | SU styrene |
| SU carbon tetrachloride | SU xylenes (o+m) |
| 10U vinyl acetate | SU xylene (p) |
| SU bromodichloromethane | SUSPENDED & RECOVERY |
| SU 1,2-dichloropropane | 93 1,2-dichloroethane-d4 (SS1) |
| SU cis-1,3-dichloropropene | 100 toluene-d8 (SS2) |
| 47 trichloroethene | 100 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

CHICK HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 22053-7M3D
CLIENT SAMPLE ID : 0321
REPORT DATE : 01-26-1999

CLIENT NAME : SEALE AFB CHICK HILL/SAC
SAMPLE RECEIVED : 1-11-99
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 1-11-99
DATE EXTRACTED :
DATE ANALYSED : 1-17-99

| | |
|-----------------------------|--------------------------------|
| 10U chloroethane | 5U dibromochloroethane |
| 10U bromoethane | 5U 1,1,2-trichloroethane |
| 10U vinyl chloride | 5U benzene |
| 10U chloroethane | 5U trans-1,3-dichloropropene |
| 12 ethylene chloride | 10U 2-chloroethyl vinyl ether |
| 24 acetone | 5U bromoform |
| 5U carbon disulfide | 10U 4-methyl-2-pentanone |
| 54 1,1-dichloroethene | 10U 2-hexanone |
| 5U 1,1-dichloroethane | 5U 1,1,2,2-tetrachloroethane |
| 5U trans-1,2-dichloroethene | 5U tetrachloroethene |
| 5U chloroform | 67 toluene |
| 5U 1,2-dichloroethane | 54 chlorobenzene |
| 17 2-butanone | 5U ethylbenzene |
| 5U 1,1,1-trichloroethane | 5U styrene |
| 5U carbon tetrachloride | 5U xylenes (o+m) |
| 10U vinyl acetate | 5U xylene (p) |
| 5U bromodichloroethane | SURROGATE 1 RECOVERY |
| 5U 1,2-dichloropropane | 93 1,2-dichloroethane-d4 (SS1) |
| 5U cis-1,3-dichloropropene | 101 toluene-d8 (SS2) |
| 52 trichloroethene | 107 bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

The information shown on this sheet is test data only, and no analysis or interpretation is intended or implied.

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 88125046-02MS
CLIENT SAMPLE ID : 21717-2 0082MS
REPORT DATE : 12-28-1988

CLIENT NAME : CH2M HILL
METHOD : 3240
BLANK ID : 88M2Y01981
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11/30/88
DATE RECEIVED : 12/13/88
DATE EXTRACTED :
DATE ANALYSED : 12/14/88

| | | | |
|--------|----------------------------|---------------------|-----------------------------|
| 11 U | chloromethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 11 U | vinyl chloride | ✓ 50 | benzene 91% |
| ✓ 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| ✓ 18 B | methylene chloride | 11 U | 2-chloroethyl vinyl ether |
| ✓ 34 B | acetone | 6 U | bromofors |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| ✓ 54 | 1,1-dichloroethene 98% | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | ✓ 57 | toluene 82% |
| 6 U | 1,2-dichloroethane | ✓ 49 | chlorobenzene 88% |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 9 U | carbon tetrachloride | 6 U | xlenes (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | UNROGATE & RECOVERY | |
| 6 U | 1,2-dichloropropene | 88- | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 103 | toluene-d8 (SS2) |
| ✓ 43 | trichloroethene 77% | 102 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 9.1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J = indicates an estimated trace value.

ANALYST : 

F-893

APPROVED BY : 

21739-3ms

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8812S048-02MSD
CLIENT SAMPLE ID : 21717-2 0002MSD
REPORT DATE : 12-28-1988

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 88N2Y01981
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11/30/88
DATE RECEIVED : 12/13/88
DATE EXTRACTED :
DATE ANALYSED : 12/14/88

| | | | |
|--------|----------------------------|----------------------|-----------------------------|
| 11 U | chloromethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 11 U | vinyl chloride | ✓ 51 | benzene 92% |
| 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| 20.3 | methylene chloride | 11 U | 2-chloroethyl vinyl ether |
| ✓ 17.3 | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| ✓ 55 | 1,1-dichloroethene 100% | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethane |
| 6 U | chloroform | ✓ 58 | toluene 84% |
| 6 U | 1,2-dichloroethane | ✓ 50 | chlorobenzene 91% |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylene (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | SURROGATE & RECOVERY | |
| 6 U | 1,2-dichloropropane | 89 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 102 | toluene-d8 (SS2) |
| ✓ 44 | trichloroethene 80% | 104 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 9.1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
= indicates an estimated trace value.

ANALYST :

[Signature]

E-254

PROVED BY :

[Signature]

REGIONAL ANALYSIS
7700 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

SOILS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 99125056-12MS
CLIENT SAMPLE ID : 21734-7MS
REPORT DATE : 01-10-1999

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 82M2V02032
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/02/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : N/A
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------------------------|-------------------------------|
| 51 U | chloromethane | 30 U | tribromochloromethane |
| 51 U | bromomethane | 30 U | 1,1,2-trichloroethane |
| 51 U | vinyl chloride | 290 | benzene |
| 51 U | chloroethane | 30 U | trans-1,3-dichlorocyclohexene |
| 43 | methylene chloride | 51 U | 2-chloroethyl vinyl ether |
| 370 | acetone | 30 U | bromoform |
| 260 | carbon disulfide | 51 U | 4-methyl-2-pentanone |
| 30 U | 1,1-dichloroethene | 51 U | 2-hexanone |
| 30 U | 1,1-dichloroethane | 30 U | 1,1,2,2-tetrachloroethane |
| 30 U | 1,2-dichloroethene (total) | 30 U | tetrachloroethene |
| 30 U | chloroform | 270 | toluene |
| 30 U | 1,2-dichloroethane | 270 | chlorobenzene |
| 51 U | 2-butanone | 30 U | ethylbenzene |
| 30 U | 1,1,1-trichloroethane | 30 U | styrene |
| 30 U | carbon tetrachloride | 30 U | xylene (o-m) |
| 51 U | vinyl acetate | 30 U | xylene (p) |
| 30 U | tribromodichloromethane | SURROGATE & RECOVERIES | |
| 30 U | 1,2-dichloropropane | 93 | 1,2-dichloroethane-d4 (SS1) |
| 30 U | cis-1,3-dichloropropene | 101 | toluene-d8 (SS2) |
| 260 | trichloroethene | 103 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 10

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E : indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

F-805

12021930-3MS

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 88125056-12MS0
CLIENT SAMPLE ID : 21734-7MS0
REPORT DATE : 01-16-1989

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 88N2V02038
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/02/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : N/A
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 61 U | chloroethane | 30 U | dibromochloromethane |
| 61 U | bromoethane | 30 U | 1,1,2-trichloroethane |
| 61 U | vinyl chloride | 290 | benzene |
| 61 U | chloroethane | 30 U | trans-1,3-dichloropropene |
| 30 | methylene chloride | 61 U | 2-chloroethyl vinyl ether |
| 300 | acetone | 30 U | bromoform |
| 30 U | carbon disulfide | 61 U | 4-methyl-2-pentanone |
| 290 | 1,1-dichloroethene | 61 U | 2-hexanone |
| 30 U | 1,1-dichloroethane | 30 U | 1,1,2,2-tetrachloroethane |
| 30 U | 1,2-dichloroethene (total) | 30 U | tetrachloroethene |
| 30 U | chloroform | 280 | toluene |
| 30 U | 1,2-dichloroethane | 280 | chlorobenzene |
| 61 U | 2-butanone | 30 U | ethylbenzene |
| 30 U | 1,1,1-trichloroethane | 30 U | styrene |
| 30 U | carbon tetrachloride | 30 U | xylene (o+m) |
| 61 U | vinyl acetate | 30 U | xylene (p) |
| 30 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 30 U | 1,2-dichloropropane | 91 | 1,2-dichloroethane-d4 (SS1) |
| 30 U | cis-1,3-dichloropropene | 101 | toluene-d8 (SS2) |
| 260 | trichloroethene | 102 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 5
% MOISTURE : 12

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J : indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

F-896

LRD 21930-2ms

WESTON ANALYTICS
220 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

0150
LAB REFERENCE NUMBER : 8812S058-09MS
CLIENT SAMPLE ID : 21740-9-MS
REPORT DATE : 12-29-1988

CLIENT NAME : CH2M HILL
FILE ID : 88M1V03529
BLANK ID : 88M1V03522
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/05/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 11 U | chloromethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 11 U | vinyl chloride | 42 | benzene |
| 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| 9 | methylene chloride | 11 U | 2-chloroethyl vinyl ether |
| 52 | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| 63 | 1,1-dichloroethene | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | 48 | toluene |
| 6 U | 1,2-dichloroethane | 48 | chlorobenzene |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylene (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 6 U | 1,2-dichloropropane | 104 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 100 | toluene-d8 (SS2) |
| 50 | trichloroethene | 88 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 10

U = indicates the compound was analysed for, but not detected.
The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.
+ = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R. F. Cunniff

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 88125058-09MSD
CLIENT SAMPLE ID : 21740-9-MSD
REPORT DATE : 12-29-1988

TENT NAME : CH2M HILL
LE ID : 88M1V03531
BLANK ID : 88M1V03522
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/05/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/19/88

| | | | |
|------|----------------------------|------|-----------------------------|
| 11 U | chloromethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 11 U | vinyl chloride | 40 | benzene |
| 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| 56 | ethylene chloride | 11 U | 2-chloroethyl vinyl ether |
| 24 | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| 62 | 1,1-dichloroethene | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | 45 | toluene |
| 6 U | 1,2-dichloroethane | 48 | chlorobenzene |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylene (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | | SURROGATE & RECOVERY |
| 6 U | 1,2-dichloropropane | 87 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 97 | toluene-d8 (SS2) |
| 53 | trichloroethene | 88 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 10

U : indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

• : indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Curney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 98125064-04MS
CLIENT SAMPLE ID : 21831-5(MS)
REPORT DATE : 01-06-1999

CLIENT NAME : CH2M HILL
METHOD : 8240
BLANK ID : 88M1V03598
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/12/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/30/88

| | | | |
|------|----------------------------|----------------------|-----------------------------|
| 11 U | chloroethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| U | vinyl chloride | ✓ 41 | benzene 74% |
| 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| ✓ 10 | methylene chloride | 11 U | 2-chloroethyl vinyl ether |
| ✓ 17 | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| ✓ 58 | 1,1-dichloroethene 105% | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | ✓ 47 | toluene 80% |
| 6 U | 1,2-dichloroethane | ✓ 41 | chlorobenzene 75% |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylenes (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | SURROGATE S RECOVERY | |
| 6 U | 1,2-dichloropropane | 90 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 108 | toluene-d8 (SS2) |
| ✓ 41 | trichloroethene 72% | 92 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 10

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
= indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : R.F. Carney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8812S064-04MSD
CLIENT SAMPLE ID : 21831-5(MSD)
REPORT DATE : 01-06-1989

CLIENT NAME : CH2M HILL
HOD : 8240
LANK ID : 88M1V03598
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/12/88
DATE RECEIVED : 12/15/88
DATE EXTRACTED : NA
DATE ANALYSED : 12/30/88

| | | | |
|------|----------------------------|----------------------|-----------------------------|
| 11 U | chloromethane | 6 U | dibromochloromethane |
| 11 U | bromomethane | 6 U | 1,1,2-trichloroethane |
| 11 U | vinyl chloride | ✓ 47 | benzene 34% |
| 11 U | chloroethane | 6 U | trans-1,3-dichloropropene |
| ✓ 9 | methylene chloride | 11 U | 2-chloroethyl vinyl ether |
| ✓ 13 | acetone | 6 U | bromoform |
| 6 U | carbon disulfide | 11 U | 4-methyl-2-pentanone |
| ✓ 61 | 1,1-dichloroethene 11% | 11 U | 2-hexanone |
| 6 U | 1,1-dichloroethane | 6 U | 1,1,2,2-tetrachloroethane |
| 6 U | 1,2-dichloroethene (total) | 6 U | tetrachloroethene |
| 6 U | chloroform | ✓ 53 | toluene 91% |
| 6 U | 1,2-dichloroethane | ✓ 45 | chlorobenzene 81% |
| 11 U | 2-butanone | 6 U | ethylbenzene |
| 6 U | 1,1,1-trichloroethane | 6 U | styrene |
| 6 U | carbon tetrachloride | 6 U | xylenes (o+m) |
| 11 U | vinyl acetate | 6 U | xylene (p) |
| 6 U | bromodichloromethane | SURROGATE & RECOVERY | |
| 6 U | 1,2-dichloropropane | 112 | 1,2-dichloroethane-d4 (SS1) |
| 6 U | cis-1,3-dichloropropene | 103 | toluene-d8 (SS2) |
| ✓ 48 | trichloroethene 80% | 100 | bromofluorobenzene (SS3) |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a dry weight basis.

DILUTION FACTOR : 1
% MOISTURE : 10

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
+ = indicates an estimated trace value.

ANALYST : ALI

APPROVED BY : P. F. Carney

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lao Sample ID: 12320011MS
 Client Sample ID: BAFB 0027 RMS

Concentration: MED
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 11/28/00
 Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|-----------------------------|-------|---|
| 74-87-3 | Chloromethane | 1300 | U | 71-43-2 | Benzene | 4700 | |
| 74-83-9 | Bromomethane | 1300 | U | 10061-02-6 | trans-1,3-Dichloropropene | 630 | U |
| 75-01-4 | Vinyl Chloride | 1300 | U | 110-75-8 | 2-Chloroethylvinylether . | 1300 | U |
| 75-00-3 | Chloroethane | 1300 | U | 75-25-2 | Bromoform | 630 | U |
| 75-09-2 | Methylene Chloride | 6000 | | 591-78-6 | 2-Hexanone | 1300 | U |
| 67-64-1 | Acetone | 1300 | U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 1300 | U |
| 75-15-0 | Carbon Disulfide | 630 | U | 127-18-4 | Tetrachloroethene | 630 | U |
| 75-35-4 | 1,1-Dichloroethene | 6400 | | 79-34-5 | 1,1,2,2-Tetrachloroethane | 630 | U |
| 75-34-3 | 1,1-Dichloroethane | 630 | U | 108-88-3 | Toluene | 5500 | |
| 540-59-0 | 1,2-Dichloroethene (total) | 630 | U | 108-90-7 | Chlorobenzene | 5500 | |
| 67-66-3 | Chloroform | 630 | U | 100-41-4 | Ethylbenzene | 630 | U |
| 107-06-2 | 1,2-Dichloroethane | 630 | U | 100-42-5 | Styrene | 630 | U |
| 78-93-3 | 2-Butanone | 1300 | U | 1330-20-7 | Xylenes (total) | 630 | U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 630 | U | | | | |
| 56-23-5 | Carbon Tetrachloride | 630 | U | | Toluene-d8 - SS | 98 | |
| 108-05-4 | Vinyl Acetate | 1300 | U | | 1,4-Bromofluorobenzene - SS | 100 | |
| 75-27-4 | Bromodichloromethane | 630 | U | | 1,2-Dichloroethane-d4 - SS | 93 | |
| 78-87-5 | 1,2-Dichloropropane | 630 | U | | | | |
| 51-01-5 | cis-1,3-Dichloropropene . . . | 630 | U | | | | |
| 71-6 | Trichloroethene | 5600 | | | | | |
| 124-48-1 | Dibromochloromethane | 630 | U | | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 630 | U | | | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

B6

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 12320011MSD
Client Sample ID: BAFB0027 RMSD

Concentration: MED
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 11/28/88
Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|------------|------------------------------------|------------|-----------------------------------|
| 74-87-3 | Chloromethane 1300 U | 71-43-2 | Benzene 6400 |
| 74-83-9 | Bromomethane 1300 U | 10061-02-6 | trans-1,3-Dichloropropene 630 U |
| 75-01-4 | Vinyl Chloride 1300 U | 110-75-8 | 2-Chloroethylvinylether . 1300 U |
| 75-00-3 | Chloroethane 1300 U | 75-25-2 | Bromoform 630 U |
| 75-09-2 | Methylene Chloride 4500 | 591-78-6 | 2-Hexanone 1300 U |
| 67-64-1 | Acetone 1300 U | 108-10-1 | 4-Methyl-2-Pentanone . . . 1300 U |
| 75-15-0 | Carbon Disulfide 630 U | 127-18-4 | Tetrachloroethene 630 U |
| 75-35-4 | 1,1-Dichloroethene 7300 | 79-34-5 | 1,1,2,2-Tetrachloroethane 630 U |
| 75-34-3 | 1,1-Dichloroethane 630 U | 108-88-3 | Toluene 5600 |
| 540-59-0 | 1,2-Dichloroethene (total) 630 U | 108-90-7 | Chlorobenzene 5900 |
| 67-66-3 | Chloroform 630 U | 100-41-4 | Ethylbenzene 630 U |
| 107-06-2 | 1,2-Dichloroethane 630 U | 100-42-5 | Styrene 630 U |
| 78-93-3 | 2-Butanone 1300 U | 1330-20-7 | Xylenes (total) 630 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . 630 U | | ----- |
| 56-23-5 | Carbon Tetrachloride 630 U | | Toluene-d8 - SS 91 |
| 108-05-4 | Vinyl Acetate 1300 U | | 1,4-Bromofluorobenzene - SS 100 |
| 75-27-4 | Bromodichloromethane 630 U | | 1,2-Dichloroethane-d4 - SS 90 |
| 78-87-5 | 1,2-Dichloropropane 630 U | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . 630 U | | |
| 11-6 | Trichloroethene 7300 | | |
| 11-48-1 | Dibromochloromethane 630 U | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . 630 U | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

~~21677-3~~
21677-2MS

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12346M08
Client Sample ID: BAFB_0078_MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 12/06/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|--------------------------------------|-------|---|------------|---------------------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 50 |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether | U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 7 | | 591-78-6 | 2-Hexanone | 10 U |
| 57-64-1 | Acetone | 10 | U | 108-10-1 | 4-Methyl-2-Pentanone | 10 U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 71 | | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 48 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 47 |
| 57-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | Toluene-d8 - SS | 98 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 99 |
| 75-27-4 | Bromodichloromethane | 5 | U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-67-5 | 1,2-Dichloropropane | 5 | U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 | U | | | |
| 79-01-6 | Trichloroethene | 48 | | | | |
| 724-48-1 | Dibromochloromethane | 5 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U | | | |

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

21677-4
21677-2MSL

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12346008
Client Sample ID: BAFB 0078 MSD

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 12/06/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|----------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 53 |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 6 | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 71 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 50 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 48 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride . . . | 5 U | | Toluene-d8 - SS | 98 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 97 |
| 75-27-4 | Bromodichloromethane . . . | 5 U | | 1,2-Dichloroethane-d4 - SS | 98 |
| 7-5 | 1,2-Dichloropropane . . . | 5 U | | | |
| 7-01-5 | cis-1,3-Dichloropropene . | 5 U | | | |
| 79-01-6 | Trichloroethene | 48 | | | |
| 124-48-1 | Dibromochloromethane . . . | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12396M02
Client Sample ID: BAFB 0088 MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 12/07/1
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|--------------------------------------|-------|--------------------------------------|-------|
| 74-87-3 Chloromethane | 10 U | 71-43-2 Benzene | 47 |
| 74-83-9 Bromomethane | 10 U | 10061-02-6 trans-1,3-Dichloropropene | 5 U |
| 75-01-4 Vinyl Chloride | 10 U | 110-75-8 2-Chloroethylvinylether . | 10 |
| 75-00-3 Chloroethane | 10 U | 75-25-2 Bromoform | 5 |
| 75-09-2 Methylene Chloride | 29 | 591-78-6 2-Hexanone | 10 |
| 67-64-1 Acetone | 10 U | 108-10-1 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 Carbon Disulfide | 5 U | 127-18-4 Tetrachloroethene | 5 U |
| 75-35-4 1,1-Dichloroethene | 86 | 79-34-5 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 1,1-Dichloroethane | 5 U | 108-88-3 Toluene | 63 |
| 540-59-0 1,2-Dichloroethene (total) | 5 U | 108-90-7 Chlorobenzene | 46 |
| 67-66-3 Chloroform | 5 U | 100-41-4 Ethylbenzene | 5 U |
| 107-06-2 1,2-Dichloroethane | 5 U | 100-42-5 Styrene | 5 U |
| 78-93-3 2-Butanone | 10 U | 1330-20-7 Xylenes (total) | 5 U |
| 71-55-6 1,1,1-Trichloroethane . . | 5 U | ----- | |
| 56-23-5 Carbon Tetrachloride . . . | 5 U | Toluene-d8 - SS | 100 |
| 108-05-4 Vinyl Acetate | 10 U | 1,4-Bromofluorobenzene - SS | 110 |
| 75-27-4 Bromodichloromethane . . . | 5 U | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 1,2-Dichloropropane . . . | 5 U | | |
| 10061-01-5 cis-1,3-Dichloropropene . | 5 U | | |
| 79-01-6 Trichloroethene | 46 | | |
| 124-48-1 Dibromochloromethane . . . | 5 U | | |
| 79-00-5 1,1,2-Trichloroethane . . | 5 U | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

DL



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Sample ID: 12396D02
Parent Sample ID: BAFB 0088 MSD

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 12/07/88
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|--------------------------------------|-------|------------|---------------------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 47 |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 29 | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 86 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 62 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 45 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 110 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 110 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 U | | | |
| 79-01-6 | Trichloroethene | 43 | | | |
| 8-1 | Dibromochloromethane | 5 U | | | |
| 75-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

2218 Railroad Avenue, P O Box 2038
Redding, California 96001

916 243 5831

F-906

86

21739-3ms

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
 Lab Sample ID: 12416M02
 Client Sample ID: BAFR 0146 MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 12/09
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|----------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 61 |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 42 | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 10 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 110 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 90 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 58 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride . . . | 5 U | | Toluene-d8 - SS | 93 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 92 |
| 75-27-4 | Bromodichloromethane . . . | 5 U | | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 | 1,2-Dichloropropane . . . | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . | 5 U | | | |
| 79-01-6 | Trichloroethene | 55 | | | |
| 124-48-1 | Dibromochloromethane . . . | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . | 5 U | | | |

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Form I

F-907

3ms

21739-3ms

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Sample ID: 12416D02
 Int Sample ID: BAFB 0146MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

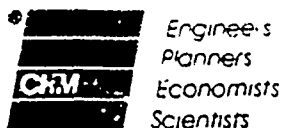
Date Extracted:
 Date Analyzed: 12/09/88
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | ug/Kg | CAS Number | ug/Kg |
|---------------------------------------|-------|--------------------------------------|-------|
| 74-87-3 Chloromethane | 10 U | 71-43-2 Benzene | 55 |
| 74-83-9 Bromomethane | 10 U | 10061-02-6 trans-1,3-Dichloropropene | 5 U |
| 75-01-4 Vinyl Chloride | 10 U | 110-75-8 2-Chloroethylvinylether . | 10 U |
| 75-00-3 Chloroethane | 10 U | 75-25-2 Bromoform | 5 U |
| 75-09-2 Methylene Chloride | 37 | 591-78-6 2-Hexanone | 10 U |
| 67-64-1 Acetone | 10 U | 108-10-1 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 Carbon Disulfide | 5 U | 127-18-4 Tetrachloroethene | 5 U |
| 75-35-4 1,1-Dichloroethene | 93 | 79-34-5 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 1,1-Dichloroethane | 5 U | 108-88-3 Toluene | 63 |
| 540-59-0 1,2-Dichloroethene (total) | 5 U | 108-90-7 Chlorobenzene | 51 |
| 67-66-3 Chloroform | 5 U | 100-41-4 Ethylbenzene | 5 U |
| 107-06-2 1,2-Dichloroethane | 5 U | 100-42-5 Styrene | 5 U |
| 78-93-3 2-Butanone | 10 U | 1330-20-7 Xylenes (total) | 5 U |
| 71-55-6 1,1,1-Trichloroethane . . . | 5 U | | |
| 56-23-5 Carbon Tetrachloride | 5 U | Toluene-d8 - SS | 90 |
| 108-05-4 Vinyl Acetate | 10 U | 1,4-Bromofluorobenzene - SS | 95 |
| 75-27-4 Bromodichloromethane . . . | 5 U | 1,2-Dichloroethane-d4 - SS | 110 |
| 78-87-5 1,2-Dichloropropane | 5 U | | |
| 10061-01-5 cis-1,3-Dichloropropene . | 5 U | | |
| 79-01-6 Trichloroethene | 49 | | |
| 8-1 Dibromochloromethane | 5 U | | |
| 75-00-5 1,1,2-Trichloroethane . . . | 5 U | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12543M06
Client Sample ID: BAFB 0345 MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/04/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 50 |
| 74-83-9 | Bromomethane | 2 J | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 13 | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 19 | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 45 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 7 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 50 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 94 | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 79-01-6 | Trichloroethene | 44 | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2MHILL

Redding
Environmental Laboratory

Railroad Avenue, P O Box 2088
Yreka 96001

F-909



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

LRID 21930-3ms.

Laboratory Name: CH2M HILL
Sample ID: 12543D06
Client Sample ID: BAFB 0345 MSD

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/04/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 54 |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 6 | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 13 | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 40 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 63 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 51 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 81 | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 97 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 89 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 5 U | | | |
| 1-6 | Trichloroethene | 48 | | | |
| 48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

Railroad Avenue, P O Box 2088
Orma 96001

F-910

06



Engineers
Planners
Economists
Scientists

LRD21657-2m

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12543M02
Client Sample ID: BAFB 0070 MS

Concentration: MED
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/09/89
Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|------------------------------|--------|------------|-----------------------------|--------|
| 74-87-3 | Chloromethane | 1300 U | 71-43-2 | Benzene | 6800 |
| 74-83-9 | Bromomethane | 1300 U | 10061-02-6 | trans-1,3-Dichloropropene | 630 U |
| 75-01-4 | Vinyl Chloride | 1300 U | 110-75-8 | 2-Chloroethylvinylether . | 1300 U |
| 75-00-3 | Chloroethane | 1300 U | 75-25-2 | Bromoform | 630 U |
| 75-09-2 | Methylene Chloride | 630 U | 591-78-6 | 2-Hexanone | 1300 U |
| 67-64-1 | Acetone | 1300 U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 1300 U |
| 75-15-0 | Carbon Disulfide | 630 U | 127-18-4 | Tetrachloroethene | 630 U |
| 75-35-4 | 1,1-Dichloroethene | 6500 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 630 U |
| 75-34-3 | 1,1-Dichloroethane | 630 U | 108-88-3 | Toluene | 7100 |
| 540-59-0 | 1,2-Dichloroethene (total) | 630 U | 108-90-7 | Chlorobenzene | 6400 |
| 67-66-3 | Chloroform | 630 U | 100-41-4 | Ethylbenzene | 630 U |
| 107-06-2 | 1,2-Dichloroethane | 630 U | 100-42-5 | Styrene | 630 U |
| 78-93-3 | 2-Butanone | 1300 U | 1330-20-7 | Xylenes (total) | 630 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 630 U | | | |
| 56-23-5 | Carbon Tetrachloride | 630 U | | Toluene-d8 - SS | 110 |
| 108-05-4 | Vinyl Acetate | 1300 U | | 1,4-Bromofluorobenzene - SS | 96 |
| 75-27-4 | Bromodichloromethane | 630 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 630 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 630 U | | | |
| 79-01-6 | Trichloroethene | 6300 | | | |
| 124-48-1 | Dibromochloromethane | 630 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 630 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2MHILL

Reading
Environmental Laboratory

*Railroad Avenue, P O Box 2068
*Tombia 96001

F-911

[Signature]



LRD 21657-2A

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 12543D02
Client Sample ID: BAFB 0070 MSD

Concentration: MED
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/09/89
Dilution Factor: 130

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|------------------------------|-------|---|------------|-----------------------------|--------|
| 74-87-3 | Chloromethane | 1300 | U | 71-43-2 | Benzene | 7400 |
| 74-83-9 | Bromomethane | 1300 | U | 10061-02-6 | trans-1,3-Dichloropropene | 630 U |
| 75-01-4 | Vinyl Chloride | 1300 | U | 110-75-8 | 2-Chloroethylvinylether . | 1300 U |
| 75-00-3 | Chloroethane | 1300 | U | 75-25-2 | Bromoform | 630 U |
| 75-09-2 | Methylene Chloride | 630 | U | 591-78-6 | 2-Hexanone | 1300 U |
| 67-64-1 | Acetone | 1300 | U | 108-10-1 | 4-Methyl-2-Pentanone . . . | 1300 U |
| 75-15-0 | Carbon Disulfide | 630 | U | 127-18-4 | Tetrachloroethene | 630 U |
| 75-35-4 | 1,1-Dichloroethene | 6300 | U | 79-34-5 | 1,1,2,2-Tetrachloroethane | 630 U |
| 75-34-3 | 1,1-Dichloroethane | 630 | U | 108-88-3 | Toluene | 7700 |
| 540-59-0 | 1,2-Dichloroethene (total) | 630 | U | 108-90-7 | Chlorobenzene | 6900 |
| 67-66-3 | Chloroform | 630 | U | 100-41-4 | Ethylbenzene | 630 U |
| 107-06-2 | 1,2-Dichloroethane | 630 | U | 100-42-5 | Styrene | 630 U |
| 78-93-3 | 2-Butanone | 1300 | U | 1330-20-7 | Xylenes (total) | 630 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 630 | U | | | |
| 56-23-5 | Carbon Tetrachloride | 630 | U | | Toluene-d8 - SS | 120 |
| 108-05-4 | Vinyl Acetate | 1300 | U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 630 | U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 630 | U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . | 630 | U | | | |
| 11-6 | Trichloroethene | 6500 | | | | |
| 11-48-1 | Dibromochloromethane | 630 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . . | 630 | U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

9 Railroad Avenue, P O Box 2088
Tifton, GA 31701

F-912

B6



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 12564M03
Client Sample ID: BAFB 0305 MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/17/8
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|----------------------------|-------|---|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 56 |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 45 | | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 13 | | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 53 | | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 48 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 47 |
| 67-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . | 5 | U | | | |
| 56-23-5 | Carbon Tetrachloride . . . | 5 | U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane . . . | 5 | U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane . . . | 5 | U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . | 5 | U | | | |
| 79-01-6 | Trichloroethene | 51 | | | | |
| 124-46-1 | Dibromochloromethane . . . | 5 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . | 5 | U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

2218 Railroad Avenue P O Box 2088
Redding, California 96001

F-913

66

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Sample ID: 12564D03
 Sample ID: BAFB 0305 MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 01/17/89
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|-------------------------------|-------|---|------------|-----------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 57 |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether . | 10 U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 23 | | 591-78-6 | 2-Hexanone | 10 U |
| 67-64-1 | Acetone | 12 | | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 60 | | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 49 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 49 |
| 67-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 10 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane . . . | 5 | U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | Toluene-d8 - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 | U | | 1,2-Dichloroethane-d4 - SS | 120 |
| 78-87-5 | 1,2-Dichloropropane | 5 | U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . | 5 | U | | | |
| 79-01-6 | Trichloroethene | 46 | | | | |
| 48-1 | Dibromochloromethane | 5 | U | | | |
| 70-5 | 1,1,2-Trichloroethane | 5 | U | | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

86



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 22087-4-MS
Client Sample ID: BAFB 0417 MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 01/26/87
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|-----------------------------------|------------|---------------------------------|
| 74-87-3 | Chloromethane 10 U | 71-43-2 | Benzene 45 |
| 74-83-9 | Bromomethane 10 U | 10061-02-6 | trans-1,3-Dichloropropene 5 U |
| 75-01-4 | Vinyl Chloride 10 U | 75-25-2 | Bromoform 5 U |
| 75-00-3 | Chloroethane 10 U | 591-78-6 | 2-Hexanone 10 U |
| 75-09-2 | Methylene Chloride 7 B | 108-10-1 | 4-Methyl-2-Pentanone . . . 10 U |
| 67-64-1 | Acetone 20 B | 127-18-4 | Tetrachloroethene 5 U |
| 75-15-0 | Carbon Disulfide 2 J | 79-34-5 | 1,1,2,2-Tetrachloroethane 5 U |
| 75-35-4 | 1,1-Dichloroethene 41 | 108-88-3 | Toluene 73 |
| 75-34-3 | 1,1-Dichloroethane 5 U | 108-90-7 | Chlorobenzene 49 |
| 540-59-0 | 1,2-Dichloroethene (total) 5 U | 100-41-4 | Ethylbenzene 5 U |
| 67-66-3 | Chloroform 5 U | 100-42-5 | Styrene 5 U |
| 107-06-2 | 1,2-Dichloroethane 5 U | 1330-20-7 | Xylenes (total) 5 U |
| 78-93-3 | 2-Butanone 9 J | | |
| 71-55-6 | 1,1,1-Trichloroethane . . . 5 U | | Toluene-d8 - SS 97 |
| 56-23-5 | Carbon Tetrachloride 5 U | | 1,4-Bromofluorobenzene - SS 100 |
| 108-05-4 | Vinyl Acetate 10 U | | 1,2-Dichloroethane-d4 - SS 99 |
| 75-27-4 | Bromodichloromethane 5 U | | |
| 78-87-5 | 1,2-Dichloropropane 5 U | | |
| 10061-01-5 | cis-1,3-Dichloropropene . . . 5 U | | |
| 79-01-6 | Trichloroethene 47 | | |
| 124-48-1 | Dibromochloromethane 5 U | | |
| 79-00-5 | 1,1,2-Trichloroethane 5 U | | |

- U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 22087-4-MSD
 Client Sample ID: BAFB 0417 MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted:
 Date Analyzed: 01/26/89
 Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | UG/KG | | CAS Number | | UG/KG |
|------------|--------------------------------------|-------|---|------------|---------------------------------------|-------|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 48 |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 | U | 75-25-2 | Bromoform | 5 U |
| 75-00-3 | Chloroethane | 10 | U | 591-78-6 | 2-Hexanone | 10 U |
| 75-09-2 | Methylene Chloride | 7 | B | 108-10-1 | 4-Methyl-2-Pentanone | 10 U |
| 67-64-1 | Acetone | 31 | B | 127-18-4 | Tetrachloroethene | 5 U |
| 75-15-0 | Carbon Disulfide | 2 | J | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 46 | | 108-88-3 | Toluene | 61 |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-90-7 | Chlorobenzene | 52 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 100-41-4 | Ethylbenzene | 5 U |
| 67-66-3 | Chloroform | 5 | U | 100-42-5 | Styrene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 1330-20-7 | Xylenes (total) | 5 U |
| 78-93-3 | 2-Butanone | 12 | | | | |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U | | Toluene-d8 - SS | 98 |
| 56-23-5 | Carbon Tetrachloride | 5 | U | | 1,4-Bromofluorobenzene - SS | 100 |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,2-Dichloroethane-d4 - SS | 99 |
| 75-27-4 | Bromodichloromethane | 5 | U | | | |
| 78-87-5 | 1,2-Dichloropropane | 5 | U | | | |
| 107-01-5 | cis-1,3-Dichloropropene | 5 | U | | | |
| 107-01-6 | Trichloroethene | 48 | | | | |
| 24-48-1 | Dibromochloromethane | 5 | U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U | | | |

U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 23114-5MS
Client Sample ID: BAFB 0538 MS

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

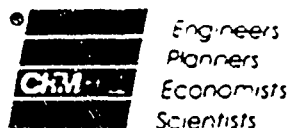
Date Extracted:
Date Analyzed: 05/16/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | CAS Number | | ug/Kg |
|------------|--------------------------------------|-------|------------|---------------------------------------|-------|
| 74-87-3 | Chloromethane | 10 U | 71-43-2 | Benzene | 46 |
| 74-83-9 | Bromomethane | 10 U | 10061-02-6 | trans-1,3-Dichloropropene | 5 U |
| 75-01-4 | Vinyl Chloride | 10 U | 110-75-8 | 2-Chloroethylvinylether | 10 U |
| 75-00-3 | Chloroethane | 10 U | 75-25-2 | Bromoform | 5 U |
| 75-09-2 | Methylene Chloride | 13 | 591-73-6 | 2-Hexanone | 10 U |
| 57-64-1 | Acetone | 27 | 108-11-1 | 4-Methyl-2-Pentanone | 10 U |
| 75-15-0 | Carbon Disulfide | 5 U | 127-18-4 | Tetrachloroethene | 5 U |
| 75-35-4 | 1,1-Dichloroethene | 37 | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 U |
| 75-34-3 | 1,1-Dichloroethane | 5 U | 108-88-3 | Toluene | 180 |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 U | 108-90-7 | Chlorobenzene | 49 |
| 67-66-3 | Chloroform | 5 U | 100-41-4 | Ethylbenzene | 5 U |
| 107-06-2 | 1,2-Dichloroethane | 5 U | 100-42-5 | Styrene | 5 U |
| 78-93-3 | 2-Butanone | 26 | 1330-20-7 | Xylenes (total) | 5 U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 U | | | |
| 56-23-5 | Carbon Tetrachloride | 5 U | | Toluene-d8 - SS | 90 |
| 108-05-4 | Vinyl Acetate | 10 U | | 1,4-Bromofluorobenzene - SS | 100 |
| 75-27-4 | Bromodichloromethane | 5 U | | 1,2-Dichloroethane-d4 - SS | 100 |
| 78-87-5 | 1,2-Dichloropropane | 5 U | | | |
| 10061-01-5 | cis-1,3-Dichloropropene | 5 U | | | |
| 79-01-6 | Trichloroethene | 50 | | | |
| 124-48-1 | Dibromochloromethane | 5 U | | | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 U | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 23114-5MSD
Client Sample ID: BAFB 0538 MSD

Concentration: LOW
Sample Matrix: SOIL
Percent Moisture:

Date Extracted:
Date Analyzed: 05/16/89
Dilution Factor: 1.0

VOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|----------------------------|-------|---|------------|-----------------------------|-------|---|
| 74-87-3 | Chloromethane | 10 | U | 71-43-2 | Benzene | 46 | |
| 74-83-9 | Bromomethane | 10 | U | 10061-02-6 | trans-1,3-Dichloropropene | 5 | U |
| 75-01-4 | Vinyl Chloride | 10 | U | 110-75-8 | 2-Chloroethylvinylether . | 10 | U |
| 75-00-3 | Chloroethane | 10 | U | 75-25-2 | Bromoform | 5 | U |
| 75-09-2 | Methylene Chloride | 17 | | 591-78-6 | 2-Hexanone | 10 | U |
| 67-64-1 | Acetone | 48 | | 108-10-1 | 4-Methyl-2-Pentanone . . . | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U | 127-18-4 | Tetrachloroethene | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 41 | | 79-34-5 | 1,1,2,2-Tetrachloroethane | 5 | U |
| 75-34-3 | 1,1-Dichloroethane | 5 | U | 108-88-3 | Toluene | 260 | |
| 540-59-0 | 1,2-Dichloroethene (total) | 5 | U | 108-90-7 | Chlorobenzene | 49 | |
| 67-66-3 | Chloroform | 5 | U | 100-41-4 | Ethylbenzene | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U | 100-42-5 | Styrene | 4 | J |
| 78-93-3 | 2-Butanone | 30 | | 1330-20-7 | Xylenes (total) | 5 | U |
| 71-55-6 | 1,1,1-Trichloroethane . . | 5 | U | | | | |
| 56-23-5 | Carbon Tetrachloride . . . | 5 | U | | Toluene-d8 - SS | 110 | |
| 108-05-4 | Vinyl Acetate | 10 | U | | 1,4-Bromofluorobenzene - SS | 95 | |
| 75-27-4 | Bromodichloromethane . . . | 5 | U | | 1,2-Dichloroethane-d4 - SS | 93 | |
| 78-87-5 | 1,2-Dichloropropane . . . | 5 | U | | | | |
| 107-01-5 | cis-1,3-Dichloropropene . | 5 | U | | | | |
| 75-00-6 | Trichloroethene | 51 | | | | | |
| 124-48-1 | Dibromochloromethane . . . | 5 | U | | | | |
| 79-00-5 | 1,1,2-Trichloroethane . . | 5 | U | | | | |

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

MATRIX SPIKES/MATRIX SPIKE DUPLICATES
Semivolatile Organic Compounds (SW8270)

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21554-SMS
CLIENT SAMPLE ID : BAFB-0054-20-C-155
REPORT DATE : 12-30-1988

CLIENT NAME : BENLE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-21-88
DATE EXTRACTED : 11-29-88
DATE ANALYSED : 12-29-88

| | |
|-----------------------------------|----------------------------------|
| 660U n-nitroso-diethylamine | 660U dibenzofuran |
| 690U phenol | 2900 2,4-dinitrotoluene |
| 660U aniline | 660U 2,6-dinitrotoluene |
| 660U bis(2-chloroethyl) ether | 660U diethyl phthalate |
| 5700 2-chlorophenol | 660U 4-chlorophenyl phenyl ether |
| 660U 1,3-dichlorobenzene | 660U fluorene |
| 2600 1,4-dichlorobenzene | 3200U 4-nitroaniline |
| 660U benzyl alcohol | 3200U 4,6-dinitro-2-ethylphenol |
| 660U 1,2-dichlorobenzene | 660U n-nitrosodiphenylamine |
| 660U 2-ethylphenol | 660U 4-bromophenyl phenyl ether |
| 660U bis(2-chloroisopropyl) ether | 660U hexachlorobenzene |
| 660U 4-ethylphenol | 6900 pentachlorophenol |
| 2400 n-nitroso-N-n-propylamine | 660U phenanthrene |
| 660U hexachloroethane | 660U anthracene |
| 660U nitrobenzene | 660U di-n-butyl phthalate |
| 660U isophorone | 660U fluoranthene |
| 660U 2-nitrophenol | 3200U benzidine |
| 660U 2,4-dimethylphenol | 3300 pyrene |
| 3200U benzoic acid | 660U butyl benzyl phthalate |
| 660U bis(2-chloroethoxy) ethane | 1300U 3,3'-dichlorobenzidine |
| 660U 2,4-dichlorophenol | 660U benzo(a)anthracene |
| 2900 1,2,4-trichlorobenzene | 450J bis(2-ethylhexyl)phthalate |
| 660U naphthalene | 660U chrysene |
| 660U 4-chloroaniline | 660U di-n-octyl phthalate |
| 660U hexachlorobutadiene | 660U benzo(b)fluoranthene |
| 5600 4-chloro-3-ethylphenol | 660U benzo(k)fluoranthene |
| 660U 2-methylnaphthalene | 660U benzo(a)pyrene |
| 660U hexachlorocyclopentadiene | 660U indeno(1,2,3-cd)pyrene |
| 660U 2,4,6-trichlorophenol | 660U dibenz(a,h)anthracene |
| 3200U 2,4,5-trichlorophenol | 660U benzo(g,h,i)perylene |
| 660U 2-chloronaphthalene | SURROGATE 1 RECOVERY |
| 3200U 2-nitroaniline | 59 2-fluorophenol (SS1) |
| 660U dimethyl phthalate | 76 phenol-d5 (SS2) |
| 660U acenaphthylene | 77 nitrobenzene-d5 (SS3) |
| 3200U 3-nitroaniline | 83 2-fluorobiphenyl |
| 2800 acenaphthene | 72 2,4,6-tribromophenol (SS5) |
| 3200U 2,4-dinitrophenol | 82 p-terphenyl-d14 (SS6) |
| 7000 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

F-919

APPROVED BY : _____

The information shown on this sheet is test data

analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21654-SMSD
CLIENT SAMPLE ID : BAFB-0054-20-C-155
REPORT DATE : 12-30-1988

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-22-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 1-21-88
DATE EXTRACTED : 11-29-88
DATE ANALYSED : 12-29-88

| | |
|-----------------------------------|----------------------------------|
| 660U n-nitroso-diethylamine | 660U dibenzofuran |
| 640U phenol | 3200 2,4-dinitrotoluene |
| 660U aniline | 660U 2,6-dinitrotoluene |
| 660U bis(2-chloroethyl) ether | 660U diethyl phthalate |
| 6300 2-chlorophenol | 660U 4-chlorophenyl phenyl ether |
| 660U 1,3-dichlorobenzene | 660U fluorene |
| 2900 1,4-dichlorobenzene | 3200U 4-nitroaniline |
| 660U benzyl alcohol | 3200U 4,6-dinitro-2-methylphenol |
| 660U 1,2-dichlorobenzene | 660U n-nitrosodiphenylamine |
| 660U 2-methylphenol | 660U 4-bromophenyl phenyl ether |
| 660U bis(2-chloroisopropyl) ether | 660U hexachlorobenzene |
| 660U 1-methylphenol | 7300 pentachlorophenol |
| 2700 n-nitroso-di-n-propylamine | 660U phenanthrene |
| 660U hexachloroethane | 660U anthracene |
| 660U nitrobenzene | 660U di-n-butyl phthalate |
| 660U isophorone | 660U anthracene |
| 660U 2-nitrophenol | 3200U benzidine |
| 660U 2,4-dimethylphenol | 3500 pyrene |
| 3200U benzoic acid | 660U butyl benzyl phthalate |
| 660U bis(2-chloroethoxy) methane | 1300U 3,3'-dichlorobenzidine |
| 660U 2,4-dichlorophenol | 660U benzo(a)anthracene |
| 3200 1,2,4-trichlorobenzene | 510J bis(2-ethylhexyl)phthalate |
| 660U naphthalene | 660U chrysene |
| 660U 4-chloroaniline | 660U di-n-octyl phthalate |
| 660U hexachlorobutadiene | 660U benzo(b)fluoranthene |
| 6300 4-chloro-3-methylphenol | 660U benzo(k)fluoranthene |
| 660U 2-acetylaminophthalene | 660U benzo(a)pyrene |
| 660U hexachlorocyclopentadiene | 660U indeno(1,2,3-cd)pyrene |
| 660U 2,4,6-trichlorophenol | 660U dibenz(a,h)anthracene |
| 3200U 2,4,5-trichlorophenol | 660U benzo(g,h,i)perylene |
| 660U 2-chloronaphthalene | SURROGATE & RECOVERY |
| 3200U 2-nitroaniline | 65 2-fluorophenol (SS1) |
| 660U dimethyl phthalate | 85 phenol-d5 (SS2) |
| 660U acenaphthylene | 85 nitrobenzene-d5 (SS3) |
| 3200U 3-nitroaniline | 92 2-fluorobiphenyl |
| 3000 acenaphthene | 61 2,4,6-tribromophenol (SS3) |
| 3200U 2,4-dinitrophenol | 95 p-terphenyl-d14 (SS4) |
| 8200 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : _____

APPROVED BY : _____

F 02

The information shown on this sheet is test data

... as or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21659-6MS
CLIENT SAMPLE ID : BAFB-0061-2-C-4SS
REPORT DATE : 01-11-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-22-88
DATE EXTRACTED : 12-1-88
DATE ANALYSED : 1-5-89

| | |
|-----------------------------------|----------------------------------|
| 660U n-nitroso-diaethylamine | 660U dibenzofuran |
| 6100 phenol | 2500 2,4-dinitrotoluene |
| 660U aniline | 660U 2,6-dinitrotoluene |
| 660U bis(2-chloroethyl) ether | 660U diethyl phthalate |
| 5300 2-chlorophenol | 660U 4-chlorophenyl phenyl ether |
| 660U 1,3-dichlorobenzene | 660U fluorene |
| 2700 1,4-dichlorobenzene | 3200U 4-nitroaniline |
| 660U benzyl alcohol | 3200U 4,6-dinitro-2-methylphenol |
| 660U 1,2-dichlorobenzene | 660U n-nitrosodiphenylamine |
| 660U 2-methylphenol | 660U 4-bromophenyl phenyl ether |
| 660U bis(2-chloroisopropyl) ether | 660U hexachlorobenzene |
| 660U 4-methylphenol | 7100 pentachlorophenol |
| 2600 n-nitroso-di-n-propylamine | 660U phenanthrene |
| 660U hexachloroethane | 660U anthracene |
| 660U nitrobenzene | 660U di-n-butyl phthalate |
| 660U isophorone | 660U fluoranthene |
| 660U 2-nitrophenol | 3200U benzidine |
| 660U 2,4-dimethylphenol | 3700 pyrene |
| 3200U benzoic acid | 660U butyl benzyl phthalate |
| 660U bis(2-chloroethoxy) methane | 1360U 3,3'-dichlorobenzidine |
| 660U 2,4-dichlorophenol | 660U benzo(a)anthracene |
| 2900 1,2,4-trichlorobenzene | 660U bis(2-ethylhexyl)phthalate |
| 660U naphthalene | 660U chrysene |
| 660U 4-chloroaniline | 660U di-n-octyl phthalate |
| 660U hexachlorobutadiene | 660U benzo(o)fluoranthene |
| 4900 4-chloro-3-methylphenol | 660U benzo(k)fluoranthene |
| 660U 2-methylnaphthalene | 660U benzo(a)pyrene |
| 660U hexachlorocyclopentadiene | 660U indeno(1,2,3-cd)pyrene |
| 660U 2,4,6-trichlorophenol | 660U dibenz(a,h)anthracene |
| 3200U 2,4,5-trichlorophenol | 660U benzo(g,h,i)perylene |
| 660U 2-chloronaphthalene | SURROGATE & RECOVERY |
| 3200U 2-nitroaniline | 72 2-fluorophenol (SS1) |
| 660U dimethyl phthalate | 94 phenol-d5 (SS2) |
| 660U acenaphthylene | 90 nitrobenzene-d5 (SS3) |
| 3200U 3-nitroaniline | 97 2-fluorobiphenyl |
| 2700 acenaphthene | 93 2,4,6-tribromophenol (SS5) |
| 3200U 2,4-dinitrophenol | 126 p-terphenyl-d14 (SS6) |
| 5100 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : *Russell G. G. G.*

F-921

APPROVED BY : _____

The information shown on this sheet is test data only, and no interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

6" IS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21659-6MSD
CLIENT SAMPLE ID : BAFB-0061-2-C-4SS
REPORT DATE : 01-11-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-22-88
DATE EXTRACTED : 12-1-88
DATE ANALYSED : 1-5-89

| | |
|-----------------------------------|----------------------------------|
| 660U n-nitroso-dimethylamine | 660U dibenzofuran |
| 5500 phenol | 2800 2,4-dinitrotoluene |
| 660U aniline | 660U 2,6-dinitrotoluene |
| 660U bis(2-chloroethyl) ether | 660U diethyl phthalate |
| 4500 2-chlorophenol | 660U 4-chlorophenyl phenyl ether |
| 660U 1,3-dichlorobenzene | 660U fluorene |
| 1800 1,4-dichlorobenzene | 3200U 4-nitroaniline |
| 660U benzyl alcohol | 3200U 4,6-dinitro-2-methylphenol |
| 660U 1,2-dichlorobenzene | 660U n-nitrosodiphenylamine |
| 660U 2-methylphenol | 660U 4-bromophenyl phenyl ether |
| 660U bis(2-chloroisopropyl) ether | 660U hexachlorobenzene |
| 660U 4-methylphenol | 8900 pentachlorophenol |
| 2400 n-nitroso-di-n-propylamine | 660U phenanthrene |
| 660U hexachloroethane | 660U anthracene |
| 660U nitrobenzene | 660U di-n-butyl phthalate |
| 660U isophorone | 660U fluoranthene |
| 660U 2-nitrophenol | 3200U benzidine |
| 660U 2,4-dimethylphenol | 4100 pyrene |
| 3200U benzoic acid | 660U butyl benzyl phthalate |
| 660U bis(2-chloroethoxy) methane | 1300U 3,3'-dichlorobenzidine |
| 660U 2,4-dichlorophenol | 660U benzo(a)anthracene |
| 2400 1,2,4-trichlorobenzene | 660U bis(2-ethylhexyl)phthalate |
| 660U naphthalene | 660U chrysene |
| 660U 4-chloroaniline | 660U di-n-octyl phthalate |
| 660U hexachlorobutadiene | 660U benzo(b)fluoranthene |
| 5400 4-chloro-3-methylphenol | 660U benzo(k)fluoranthene |
| 660U 2-methylnaphthalene | 660U benzo(a)pyrene |
| 660U hexachlorocyclopentadiene | 660U indeno(1,2,3-cd)pyrene |
| 660U 2,4,6-trichlorophenol | 660U dibenz(a,h)anthracene |
| 3200U 2,4,5-trichlorophenol | 660U benzo(g,h,i)perylene |
| 660U 2-chloronaphthalene | SURROGATE & RECOVERY |
| 3200U 2-nitroaniline | 52 2-fluorophenol (SS1) |
| 660U dimethyl phthalate | 81 phenol-d5 (SS2) |
| 660U acenaphthylene | 72 nitrobenzene-d5 (SS3) |
| 3200U 3-nitroaniline | 90 2-fluorobiphenyl |
| 3100 acenaphthene | 103 2,4,6-tribromophenol (SS5) |
| 3200U 2,4-dinitrophenol | 127 p-terphenyl-d14 (SS6) |
| 7000 4-nitrophenol | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST : *Evan G. Davis*

APPROVED BY : _____

F-922

The information shown on this sheet is test data

analysis or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21677-4MS
CLIENT SAMPLE ID : BAFB-0080 19-C-1USS
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-23-88
DATE EXTRACTED : 12-5-88
DATE ANALYSED : 1-7-89

| | | | |
|-------|------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-dimethylamine | 660U | dibenzofuran |
| 4000 | phenol | 1800 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | 2,2-dichloroethyl ether | 660U | diethyl phthalate |
| 3400 | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,2-dichlorobenzene | 660U | fluorene |
| 1800 | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-methylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-methylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-methylphenol | 4700 | pentachlorophenol |
| 1600 | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isophorone | 520J | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-diethylphenol | 1700 | pyrene |
| 3200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 1800 | 1,2,4-trichlorobenzene | 960 | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 3100 | 4-chloro-3-methylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-methylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 3200U | 2-nitroaniline | 45 | 2-fluorophenol (SS1) |
| 660U | dimethyl phthalate | 55 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 54 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 57 | 2-fluorobiphenyl |
| 1800 | acenaphthene | 57 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 55 | p-terphenyl-d14 (SS6) |
| 3800 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceeding "U" is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian J. Williams

APPROVED BY :

The information shown on this sheet is test data F-923

or interpretation is intended on analysis.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21677-4MSD
CLIENT SAMPLE ID : BAFB-0060 19-C-1U55
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 11-23-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-23-88
DATE EXTRACTED : 12-5-88
DATE ANALYSED : 1-7-89

| | | | |
|-------|------------------------------|-------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 4100 | phenol | 1900 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethyl) ether | 660U | diethyl phthalate |
| 3500 | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,3-dichlorobenzene | 660U | fluorene |
| 1700 | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-methylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-methylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-methylphenol | 4700 | pentachlorophenol |
| 1500 | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isopropene | 660U | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-diaethylphenol | 1900 | pyrene |
| 3200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 1900 | 1,2,4-trichlorobenzene | 1100 | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 3200 | 4-chloro-3-methylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-methylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | | SURROGATE & RECOVERY |
| 3200U | 2-nitroaniline | 45 | 2-fluorophenol (SS1) |
| 660U | dimethyl phthalate | 57 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 54 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 61 | 2-fluorobiphenyl |
| 1900 | acenaphthene | 56 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 57 | p-terphenyl-d14 (SS6) |
| 3600 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian G. Gero

APPROVED BY :

The information shown on this sheet is test data or F-924

or interpretation is intended or, as possible.

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21717-SMS
CLIENT SAMPLE ID : 0086 C558
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 11-30-88
DATE EXTRACTED : 12-8-88
DATE ANALYSED : 1-10-89

| | | | |
|-------|------------------------------|-------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 660U | phenol | 2500 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethyl) ether | 660U | diethyl phthalate |
| 500U | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,2-dichlorobenzene | 660U | fluorene |
| 2700 | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-methylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-methylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-methylphenol | 6100 | pentachlorophenol |
| 2000 | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isophorone | 660U | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-diaethylphenol | 3400 | pyrene |
| 3200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 2900 | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 4400 | 4-chloro-3-methylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-methylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,5-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | | SURROGATE 1 RECOVERY |
| 3200U | 2-nitroaniline | 54 | 2-fluorophenol (SS1) |
| 660U | dimethyl phthalate | 68 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 87 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 91 | 2-fluorobiphenyl |
| 2700 | acenaphthene | 51 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 111 | p-terphenyl-d14 (SS6) |
| 4400 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Jones

APPROVED BY :

The information shown on this sheet is test data

F-925

or interpretation is intended or i

CH2M HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
REDDING CA 96001 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21717-6MSD
CLIENT SAMPLE ID : 0086 CSS8
REPORT DATE : 01-24-1989

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-1-88
SAMPLE TYPE : SOIL-SEDIMENT/SOLIDS

DATE SAMPLED : 11-30-88
DATE EXTRACTED : 12-8-88
DATE ANALYSED : 1-10-89

| | | | |
|-------|------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 610U | phenol | 2500 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethyl) ether | 660U | diethyl phthalate |
| 430U | 2-chloronaphenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,2-dichlorobenzene | 660U | fluorene |
| 130U | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-ethylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-ethylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-ethylphenol | 670U | pentachlorophenol |
| 150U | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isophorone | 660U | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-diaethylphenol | 3500 | pyrene |
| 3200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 210U | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 510U | 4-chloro-3-ethylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-ethylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE 1 RECOVERY | |
| 3200U | 2-nitroaniline | 43 | 2-fluorophenol (SS1) |
| 660U | diethyl phthalate | 61 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 65 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 76 | 2-fluorobiphenyl |
| 2500 | acenaphthene | 63 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 111 | p-terphenyl-d14 (SS6) |
| 500U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Hoers

APPROVED BY :

The information shown on this sheet is test data

F-926

or interpretation is intended

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538009
 Client Sample ID: 21774-8MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-----------------------------|-------|---|------------|----------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine . . | 330 | U | 100-02-7 | 4-Nitrophenol | 140 | J |
| 108-95-2 | Phenol | 180 | J | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 93 | J |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 150 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 65 | J | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 48 | J | 87-86-5 | Pentachlorophenol | 150 | J |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate . . . | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 93 | J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate . . . | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 660 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 9-82-1 | 1,2,4-Trichlorobenzene . . | 79 | J | 218-01-9 | Chrysene | 330 | U |
| 1-20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate . . . | 330 | U |
| 87-68-3 | Hexachlorobutadiene . . . | 330 | U | 205-99-2 | Benzo(b)fluoranthene . . . | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 170 | J | 207-08-9 | Benzo(k)fluoranthene . . . | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene . . | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 330 | U |
| 91-58-7 | 2-Chloronaphthalene . . . | 330 | U | | | | |
| 88-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS . . . | 100 | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS . . | 90 | |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS . . . | 87 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 120 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS . . . | 92 | |
| 83-32-9 | Acenaphthene | 83 | J | | 2,4,6-Tribromophenol - SS | 68 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538010
 Client Sample ID: 21774-8MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|---------------------------------------|-------|---|------------|--------------------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine | 330 | U | 100-02-7 | 4-Nitrophenol | 140 | J |
| 108-95-2 | Phenol | 140 | J | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 92 | J |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 120 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 49 | J | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 119-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 38 | J | 87-86-5 | Pentachlorophenol | 130 | J |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 87 | J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine | 660 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 61 | J | 218-01-9 | Chrysene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 67-68-3 | Hexachlorobutadiene | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 160 | J | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 98-06-2 | 2,4,6-Trichlorophenol | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 35-95-4 | 2,4,5-Trichlorophenol | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | | | | |
| 98-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS | 80 | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS | 74 | |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS | 88 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 90 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS | 70 | |
| 93-32-9 | Acenaphthene | 82 | J | | 2,4,6-Tribromophenol - SS | 69 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538012
 Parent Sample ID: 21775-2MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|-------------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine . . . | 330 | U | 100-02-7 | 4-Nitrophenol | 66 | J |
| 108-95-2 | Phenol | 170 | J | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 93 | J |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 140 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 57 | J | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 45 | J | 87-86-5 | Pentachlorophenol | 120 | J |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 89 | J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 660 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 82-1 | 1,2,4-Trichlorobenzene . . . | 74 | J | 218-01-9 | Chrysene | 330 | U |
| 20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 170 | J | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | | | | |
| 98-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS | 100 | |
| 31-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS | 78 | |
| 38-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS | 91 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 110 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS | 83 | |
| 93-32-9 | Acenaphthene | 94 | J | | 2,4,6-Tribromophenol - SS . . | 63 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538013
 Client Sample ID: 21775-2MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/19/89
 Dilution Factor: 1.

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg |
|------------|------------------------------|-------|---|------------|------------------------------|--------|
| 62-75-9 | N-Nitrosodimethylamine . . | 330 | U | 100-02-7 | 4-Nitrophenol | 150 J |
| 108-95-2 | Phenol | 190 | J | 132-54-9 | Dibenzofuran | 330 U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 100 J |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 330 | U | 84-66-2 | Diethylphthalate | 330 U |
| 95-57-8 | 2-Chlorophenol | 160 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 U |
| 106-46-7 | 1,4-Dichlorobenzene | 69 | J | 100-01-6 | 4-Nitroaniline | 1600 U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 330 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 51 | J | 87-86-5 | Pentachlorophenol | 130 J |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate | 330 U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 95 J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate | 330 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 660 U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 78 | J | 218-01-9 | Chrysene | 330 U |
| 91-20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 U |
| 87-68-3 | Hexachlorobutadiene | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 160 | J | 207-08-9 | Benzo(k)fluoranthene | 330 U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 330 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 330 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 330 U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | | | |
| 28-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS . . . | 110 |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS . . . | 83 |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS | 94 |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | J | | Phenol-d5 - SS | 120 |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS | 98 |
| 83-32-9 | Acenaphthene | 91 | J | | 2,4,6-Tribromophenol - SS | 70 |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538028
 Client Sample ID: 21787-2MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture: _____

Date Extracted: 12/20/88
 Date Analyzed: 01/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|------------------------------|-------|---|------------|------------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine . . | 330 | U | 100-02-7 | 4-Nitrophenol | 140 | J |
| 108-95-2 | Phenol | 130 | J | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 77 | J |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 140 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 62 | J | 100-01-6 | 4 Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 48 | J | 87-86-5 | Pentachlorophenol | 130 | J |
| 67-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate | 6 | J |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 89 | J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 660 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 73 | J | 218-01-9 | Chrysene | 330 | U |
| 20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| -47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 61-68-3 | Hexachlorobutadiene | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 140 | J | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 330 | U |
| 38-06-2 | 2,4,6-Trichlorophenol . . . | 330 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | | | | |
| 88-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS . . . | 82 | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS . . . | 85 | |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS | 92 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 85 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS | 73 | |
| 93-32-9 | Acenaphthene | 80 | J | | 2,4,6-Tribromophenol - SS | 89 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 12538029
 Client Sample ID: 21787-2MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 12/20/88
 Date Analyzed: 01/20/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/Kg | | CAS Number | | ug/Kg | |
|------------|-------------------------------|-------|---|------------|-------------------------------|-------|---|
| 62-75-9 | N-Nitrosodimethylamine . . . | 330 | U | 100-02-7 | 4-Nitrophenol | 120 | J |
| 13-95-2 | Phenol | 130 | J | 132-64-9 | Dibenzofuran | 330 | U |
| 62-53-3 | Aniline | 330 | U | 121-14-2 | 2,4-Dinitrotoluene | 72 | J |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 330 | U | 84-66-2 | Diethylphthalate | 330 | U |
| 95-57-8 | 2-Chlorophenol | 130 | J | 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | 86-73-7 | Fluorene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 61 | J | 100-01-6 | 4-Nitroaniline | 1600 | U |
| 100-51-6 | Benzyl Alcohol | 330 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 1600 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 330 | U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 330 | U | 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U | 118-74-1 | Hexachlorobenzene | 330 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 45 | J | 87-86-5 | Pentachlorophenol | 120 | J |
| 57-72-1 | Hexachloroethane | 330 | U | 85-01-8 | Phenanthrene | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | J | 120-12-7 | Anthracene | 330 | U |
| 78-59-1 | Isophorone | 330 | U | 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U | 206-44-0 | Fluoranthene | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | 129-00-0 | Pyrene | 90 | J |
| 65-85-0 | Benzoic Acid | 1600 | U | 85-68-7 | Butylbenzylphthalate | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | J | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 660 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | 56-55-3 | Benzo(a)anthracene | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 73 | J | 218-01-9 | Chrysene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U | 117-84-0 | Di-n-octylphthalate | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U | 205-99-2 | Benzo(b)fluoranthene | 330 | U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 140 | J | 207-08-9 | Benzo(k)fluoranthene | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | 50-32-8 | Benzo(a)pyrene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | 193-39-5 | Benzo(1,2,3-cd)Pyrene . . . | 330 | U |
| 98-06-2 | 2,4,6-Trichlorophenol | 330 | U | 53-70-3 | Benzo(a,h)Anthracene | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 1600 | U | 191-24-2 | Benzo(g,h,i)perylene | 330 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | | | | |
| 58-74-4 | 2-Nitroaniline | 1600 | U | | Nitrobenzene-d5 - SS | 80 | |
| 131-11-3 | Dimethyl Phthalate | 330 | U | | 2-Fluorobiphenyl - SS | 74 | |
| 208-96-8 | Acenaphthylene | 330 | U | | Terphenyl-d14 - SS | 87 | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | | Phenol-d5 - SS | 79 | |
| 99-09-2 | 3-Nitroaniline | 1600 | U | | 2-Fluorophenol - SS | 69 | |
| 83-32-9 | Acenaphthene | 76 | J | | 2,4,6-Tribromophenol - SS . . | 81 | |
| 51-28-5 | 2,4-Dinitrophenol | 1600 | U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

WESTON ANALYTICS
7720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 357-3403

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8901S035-02
CLIENT SAMPLE ID : 21733-5 MS
REPORT DATE : 01-20-1989

CLIENT NAME : CH2M HILL
FILE ID : 99M2BN0185
BLANK ID : 99M2BN0183
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/13/89
DATE EXTRACTED :
DATE ANALYSED : 01/20/89

| | | | |
|--------|------------------------------|----------------------|------------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | o-benzofuran |
| 4300 | phenol | 3400 | 2,4-dinitrotoluene |
| 330 U | aniline | 52 J | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 4600 | 2-chlorobenzene | 330 U | 4-chlorobenzyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 2400 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 2600 | 1,2-dichlorobenzene | 75 J | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-oxocyclohexyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 6300 | penta-chlorophenol |
| 2600 | n-nitroso-di-n-propylamine | 330 U | anthracene |
| 330 U | hexachlorocyclopentadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 57 J | di-n-butyl phthalate |
| 330 U | isobutylene | 250 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzofuran |
| 330 U | 2,4-dimethylphenol | 3300 | pyrene |
| 1600 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 560 U | 1,1'-dichlorobenzene |
| 330 U | 2,4-dichlorobenzene | 330 U | benzo a anthracene |
| 3300 | 1,2,4-trichlorobenzene | 330 U | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-nitroaniline | 330 U | di-n-butyl phthalate |
| 330 U | hexachlorocyclopentadiene | 330 U | benzo b fluoranthene |
| 5600 | 4-chloro-3-methylphenol | 330 U | benzo k fluoranthene |
| 50 J | 2-methylnaphthalene | 330 U | benzo a/cyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno 1,2,3-cdpyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 53 | 2-fluorophenol (SS1) |
| 330 U | diethyl phthalate | 55 | phenol-d5 (SS2) |
| 35 J | acenaphthylene | 56 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 57 | 2-fluorobiphenyl |
| 2600 | acenaphthene | 63 | 2,4,6-tribromophenol (SS4) |
| 1600 U | 2,4-dinitrophenol | 95 | p-terphenyl-d14 (SS5) |
| 8300 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J indicates an estimated trace value.

ANALYST : _____

F-933

REC'D : P.F. Caney

WESTON ANALYTICS
1722 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8903035-03
CLIENT SAMPLE ID : 21733-5 MSD
REPORT DATE : 01-20-1989

CLIENT NAME : CH2M HILL
FILE ID : 89M2BN0186
BLANK ID : 89M2BN0183
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED :
DATE ANALYSED : 01/20/89

| | | | |
|--------|-------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-diethylamine | 330 U | dibenzofuran |
| 4400 | phenol | 3400 | 2,4-dinitrotoluene |
| 330 U | aniline | 43 J | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethoxy) ether | 330 U | diethyl phthalate |
| 4700 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 2100 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 2200 | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropoxy) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 5300 | penta-chlorophenol |
| 2400 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachlorobutadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 130 J | di-n-butyl phthalate |
| 330 U | isophorone | 240 J | fluoranthene |
| 330 J | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 3230 | pyrene |
| 1400 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 J | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzotriazene |
| 2400 | 1,2,4-trichlorobenzene | 330 U | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-nitroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzo(b)fluoranthene |
| 5500 | 4-chloro-3-methylphenol | 330 U | benzo(k)fluoranthene |
| 72 J | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno(1,2,3-cd)pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | cibenzo(a,h)anthracene |
| 1630 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 51 | 2-fluorophenol (SS1) |
| 330 U | diethyl phthalate | 86 | phenol-d5 (SS2) |
| 33 J | acenaphthylene | 69 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 69 | 2-fluorobiphenyl |
| 2700 | acenaphthene | 72 | 2,4,6-tribromophenol (SS4) |
| 1600 U | 2,4-dinitrophenol | 89 | p-terphenyl-d4 (SS5) |
| 8900 | 4-nitrophenol | | |

UNIT : ug/kg (micrograms per kilogram)
as reported on a wet weight basis.

DILUTION FACTOR : 1

indicates the compound was analysed for, but not detected.
the numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
indicates an estimated trace value.

ARSTON ANALYTICS
1720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 9901SC23-SVS
CLIENT SAMPLE ID : 21734-9 MS
REPORT DATE : 01-20-1999

TEST NAME : CH2M HILL
FILE ID : 89M29N0153
BLANK ID : 89M29N0152
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/08/88
DATE RECEIVED : 01/17/89
DATE EXTRACTED : 12/13/88
DATE ANALYSED : 01/18/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-diethylamine | 330 U | dibenzofuran |
| 4600 | phenol | 3100 | 2,4-dinitrotoluene |
| 330 U | aniline | 35 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 5400 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 2400 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 3400 | pentachlorophenol |
| 3900 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachlorocyclopentadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 440 | di-n-butyl phthalate |
| 330 U | isophorene | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 2400 | pyrene |
| 1600 U | benzoic acid | 330 U | butyl phenyl phthalate |
| 330 U | bis(2-chloroethoxy) acetate | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo[a]anthracene |
| 2600 | 1,2,4-trichlorobenzene | 330 U | bis(1-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorocyclopentadiene | 330 U | benzo difluoranthene |
| 5300 | 4-chloro-3-methylphenol | 330 U | benzo k fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo a) pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno 1,2,3-cd pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | ci benz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo g,n,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE X RECOVERY | |
| 1600 U | 2-nitroaniline | 50 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 57 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 57 | nitrobenzene-d5 SS3 |
| 1600 U | 3-nitroaniline | 58 | 2-fluorobiphenyl |
| 2400 | acenaphthene | 59 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 70 | p-terphenyl-d14 (SS5) |
| 7100 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
- indicates an estimated trace value.

ANALYST :

HR

APPROVED BY :

R. F. Loney

WESTON ANALYTICS
7720 LORRAINE AVE. SUITE 102
STOCKTON CA 95210 209 957-3405

SOILS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 9301S029-9MSD
CLIENT SAMPLE ID : 21734-8 MSD
REPORT DATE : 01-20-1989

CLIENT NAME : CH2M HILL
FILE ID : 89W2BN0154
BLANK ID : 89W2BN0152
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12/08/88
DATE RECEIVED : 01/17/89
DATE EXTRACTED : 12/13/88
DATE ANALYSED : 01/13/89

| | | | |
|--------|------------------------------|--------|-----------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | dibenzofuran |
| 4900 | phenol | 2900 | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 5400 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 2300 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 3000 | penta-chlorophenol |
| 1900 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachlorobutadiene | 330 U | anthracene |
| 330 U | nitrobenzene | 180 | di-n-butyl phthalate |
| 330 U | isodurene | 330 U | fluoranthene |
| 330 U | 2-nitrodurene | 1600 U | benzofuran |
| 330 U | 2,4-dimethylphenol | 2400 | pyrene |
| 1600 U | benzofuran | 330 U | diethyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo[a]anthracene |
| 2600 | 1,2,4-trichlorobenzene | 330 U | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzofluoranthene |
| 6100 | 4-chloro-3-methylphenol | 330 U | benzo[k]fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzofluorene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno 1,2,3-cd-pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz[a,h]anthracene |
| 1600 U | 2,4,6-trichlorophenol | 330 U | benzo[g,h,i]perylene |
| 330 U | 2-chloronaphthalene | | SURROGATE & RECOVERY |
| 1600 U | 2-nitroaniline | 62 | 2-fluorophenol (SS1) |
| 330 U | diethyl phthalate | 63 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 65 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 65 | 2-fluorobiphenyl |
| 2300 | acenaphthene | 65 | 2,4,6-trichlorophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 73 | p-terphenyl-d14 (SS6) |
| 7700 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U = indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
E = indicates an estimated trace value.

ANALYST :

IR

F-936

APPROVED BY :

R.F. Carney

CHOW HILL ENVIRONMENTAL LABORATORY
2218 RAILROAD AVENUE
PERRIS CA 92501 916-243-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAP REFERENCE NUMBER : 21802-ZMS
CLIENT SAMPLE ID : 0226-6
REPORT DATE : 01-25-1989

CLIENT NAME : PEOPLE FOR CHOW HILL/SAC
SAMPLE RECEIVED : 12-13-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-12-88
DATE EXTRACTED : 12-23-88
DATE ANALYSED : 1-23-89

| | | | |
|-------|------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 5900 | phenol | 2900 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethyl) ether | 660U | diethyl phthalate |
| 4600 | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,3-dichlorobenzene | 660U | fluorene |
| 1900 | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-ethylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-ethylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-ethylphenol | 5800 | pentachlorophenol |
| 1900 | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isophorone | 660U | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-diaethylphenol | 3200 | pyrene |
| 1200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 1200 | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 4300 | 4-chloro-3-ethylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-ethylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,5-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE 1 RECOVERY | |
| 1200U | 2-nitroaniline | 51 | 2-fluorophenol (SS1) |
| 660U | dimethyl phthalate | 71 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 70 | nitrobenzene-d5 (SS3) |
| 1200U | 3-nitroaniline | 77 | 2-fluorobiphenyl |
| 1300 | acenaphthene | 85 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 94 | p-terphenyl-d14 (SS6) |
| 4700 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

Indicates an estimated trace value.

ANALYST :

Brian Jones

F-937

IVED BY :

CHCM HILL ENVIRONMENTAL LABORATORY
2219 RAILROAD AVENUE
REDDING CA 96001 916-240-1735

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 21832-QMS2
CLIENT SAMPLE ID : 0226-4
REPORT DATE : 01-25-1999

CLIENT NAME : REALE AFB CHCM HILL/SAC
SAMPLE RECEIVED : 12-10-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-10-88
DATE EXTRACTED : 12-23-88
DATE ANALYSED : 1-22-89

| | | | |
|-------|------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 640U | phenol | 290U | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethyl) ether | 660U | diethyl phthalate |
| 509U | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,3-dichlorobenzene | 660U | fluorene |
| 240U | 1,4-dichlorobenzene | 3200U | 4-nitroaniline |
| 660U | benzyl alcohol | 3200U | 4,6-dinitro-2-ethylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-ethylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropyl) ether | 660U | hexachlorobenzene |
| 660U | 4-ethylphenol | 560U | pentachlorophenol |
| 200U | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 660U | di-n-butyl phthalate |
| 660U | isophorone | 660U | fluoranthene |
| 660U | 2-nitrophenol | 3200U | benzidine |
| 660U | 2,4-dieethylphenol | 320U | pyrene |
| 3200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 250U | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 460U | 4-chloro-3-ethylphenol | 660U | benzo(k)fluoranthene |
| 660U | 3-ethylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenzo(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE 1 RECOVERY | |
| 3200U | 2-nitroaniline | 56 | 2-fluorophenol (SS1) |
| 660U | dimethyl phthalate | 77 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 80 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 80 | 2-fluorobiphenyl |
| 260U | acenaphthene | 59 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 99 | p-terphenyl-d14 (SS6) |
| 440U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

* indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

* indicates an estimated trace value.

ANALYST :

Brian Jones

E-938

ED BY :

CLIENT NAME : BEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-14-88
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-13-88
DATE EXTRACTED : 12-27-88
DATE ANALYSED : 1-24-89

| | | | |
|-------|-------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 7200 | phenol | 7100 | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethoxy) ether | 660U | diethyl phthalate |
| 660U | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,2-dichlorobenzene | 660U | fluorene |
| 660U | 1,4-dichlorobenzene | 7200U | 4-nitroaniline |
| 660U | phenyl alcohol | 7200U | 4,6-dinitro-2-ethylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-ethylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropoxy) ether | 660U | hexachlorobenzene |
| 660U | 4-ethylphenol | 5700 | pentachlorophenol |
| 2000 | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 500J | di-n-butyl phthalate |
| 660U | isochlorane | 660U | fluoranthene |
| 660U | 2-nitrophenol | 7200U | benzidine |
| 660U | 2,4-diethylphenol | 3700 | pyrene |
| 7200U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1700U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 7200 | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 4900 | 4-chloro-3-ethylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-ethylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 3200U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE % RECOVERY | |
| 3200U | 2-nitroaniline | 70 | 2-fluorophenol (SS1) |
| 660U | diethyl phthalate | 92 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 91 | nitrobenzene-d5 (SS3) |
| 3200U | 3-nitroaniline | 93 | 2-fluorobiphenyl |
| 2800 | acenaphthene | 81 | 2,4,6-tribromophenol (SS5) |
| 3200U | 2,4-dinitrophenol | 106 | p-terphenyl-d14 (SS6) |
| 5900 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for; but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Allen

APPROVED BY :

The information shown on this sheet is test data only.

Use or interpretation is intended or implied.

CH2M HILL ENVIRONMENTAL LABORATORY
2016 RAILROAD AVENUE
REDDING CA 96001 916-247-1735

SOAMS SEMI-VOLATILE ORGANIC ANALYSIS

LAB REFERENCE NUMBER : 31345-0MS0
CLIENT SAMPLE ID : 0250
REPORT DATE : 01-26-1997

CLIENT NAME : SEALE AFB CH2M HILL/SAC
SAMPLE RECEIVED : 12-14-93
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED : 12-13-93
DATE EXTRACTED : 12-27-93
DATE ANALYSED : 1-24-97

| | | | |
|-------|-------------------------------|----------------------|-----------------------------|
| 660U | n-nitroso-diethylamine | 660U | dibenzofuran |
| 660U | phenol | 1300U | 2,4-dinitrotoluene |
| 660U | aniline | 660U | 2,6-dinitrotoluene |
| 660U | bis(2-chloroethoxy) ether | 660U | diethyl phthalate |
| 660U | 2-chlorophenol | 660U | 4-chlorophenyl phenyl ether |
| 660U | 1,3-dichlorobenzene | 660U | fluorene |
| 1300U | 1,4-dichlorobenzene | 1300U | 4-nitroaniline |
| 660U | benzyl alcohol | 1300U | 4,6-dinitro-2-ethylphenol |
| 660U | 1,2-dichlorobenzene | 660U | n-nitrosodiphenylamine |
| 660U | 2-ethylphenol | 660U | 4-bromophenyl phenyl ether |
| 660U | bis(2-chloroisopropoxy) ether | 660U | hexachlorobenzene |
| 660U | 4-ethylphenol | 4700 | pentachlorophenol |
| 1300U | n-nitroso-di-n-propylamine | 660U | phenanthrene |
| 660U | hexachloroethane | 660U | anthracene |
| 660U | nitrobenzene | 1300U | di-n-butyl phthalate |
| 660U | isopropene | 660U | fluoranthene |
| 660U | 2-nitrophenol | 1300U | benzidine |
| 660U | 2,4-diethylphenol | 1300U | pyrene |
| 1300U | benzoic acid | 660U | butyl benzyl phthalate |
| 660U | bis(2-chloroethoxy) methane | 1300U | 3,3'-dichlorobenzidine |
| 660U | 2,4-dichlorophenol | 660U | benzo(a)anthracene |
| 1300U | 1,2,4-trichlorobenzene | 660U | bis(2-ethylhexyl)phthalate |
| 660U | naphthalene | 660U | chrysene |
| 660U | 4-chloroaniline | 660U | di-n-octyl phthalate |
| 660U | hexachlorobutadiene | 660U | benzo(b)fluoranthene |
| 4400 | 4-chloro-3-ethylphenol | 660U | benzo(k)fluoranthene |
| 660U | 2-ethylnaphthalene | 660U | benzo(a)pyrene |
| 660U | hexachlorocyclopentadiene | 660U | indeno(1,2,3-cd)pyrene |
| 660U | 2,4,6-trichlorophenol | 660U | dibenz(a,h)anthracene |
| 1300U | 2,4,5-trichlorophenol | 660U | benzo(g,h,i)perylene |
| 660U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1300U | 2-nitroaniline | 60 | 2-fluorophenol (SS1) |
| 660U | diethyl phthalate | 79 | phenol-d5 (SS2) |
| 660U | acenaphthylene | 76 | nitrobenzene-d5 (SS3) |
| 1300U | 3-nitroaniline | 81 | 2-fluorobiphenyl |
| 1300U | acenaphthene | 66 | 2,4,6-tribromophenol (SS5) |
| 1300U | 2,4-dinitrophenol | 89 | p-terphenyl-d14 (SS6) |
| 660U | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)

U = indicates the compound was analysed for, but not detected.

The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.

J = indicates an estimated trace value.

ANALYST :

Brian Adams

APPROVED BY :

The information shown on this sheet is test data

or interpretation is intended or i

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Sample ID: 21991-2MS
 Parent Sample ID: SOILSB 0303MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/18/89
 Date Analyzed: 02/08/89
 Dilution Factor: 2.0

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|-------------------------------------|------------|-------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol . . . 3200 U |
| 108-95-2 | Phenol 2800 | 100-02-7 | 4-Nitrophenol 2000 J |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 560 U | 121-14-2 | 2,4-Dinitrotoluene 1800 |
| 95-57-8 | 2-Chlorophenol 2900 | 84-66-2 | Diethylphthalate 660 BU |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenylether 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 960 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 BU |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 660 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 930 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 2400 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 95 BU |
| 105-67-9 | 2,4-Dimethylphenol 660 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 2200 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 U |
| 83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 U |
| 82-1 | 1,2,4-Trichlorobenzene . . . 1100 | 56-55-3 | Benzo(a)anthracene 660 U |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 BU |
| 87-68-3 | Hexachlorobutadiene 660 U | 117-84-0 | Di-n-octylphthalate 660 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . 2400 | 205-99-2 | Benzo(b)fluoranthene 660 U |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 U |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-8 | Benzo(a)pyrene 660 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . 3200 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 U | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 U | | |
| 131-11-3 | Dimethyl Phthalate 660 U | | Nitrobenzene-d5 - SS 83 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 99 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 130 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 71 |
| 83-32-9 | Acenaphthene 1500 | | 2-Fluorophenol - SS 130 |
| | | | 2,4,6-Tribromophenol - SS . . 75 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form 1

66

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 21991-2MSD
 Client Sample ID: SOIL 0303MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/18/89
 Date Analyzed: 02/08/89
 Dilution Factor: 2

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|---------------------------------------|------------|--------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol 3200 U |
| 108-95-2 | Phenol 2500 | 100-02-7 | 4-Nitrophenol 2300 J |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 660 U | 121-14-2 | 2,4-Dinitrotoluene 1700 |
| 95-57-8 | 2-Chlorophenol 2600 | 84-66-2 | Diethylphthalate 660 BU |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenylether 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 1000 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 BU |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 66 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 780 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 2100 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 160 BU |
| 105-67-9 | 2,4-Dimethylphenol 660 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 1700 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 |
| 120-83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 1000 | 56-55-3 | Benzo(a)anthracene 660 U |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 BU |
| 87-68-3 | Hexachlorobutadiene 660 U | 117-84-0 | Di-n-octylphthalate 660 |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 2000 | 205-99-2 | Benzo(b)fluoranthene 660 |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-8 | Benzo(a)pyrene 660 |
| 88-06-2 | 2,4,6-Trichlorophenol 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol 3200 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 U | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 U | | |
| 131-11-3 | Dimethyl Phthalate 660 U | | Nitrobenzene-d5 - SS 71 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 82 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 110 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 60 |
| 83-32-9 | Acenaphthene 1400 | | 2-Fluorophenol - SS 55 |
| | | | 2,4,6-Tribromophenol - SS . . 57 |

- 1) - Cannot be separated from diphenylamine
- J - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

Bb

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Sample ID: 22002-2MS
 Client Sample ID: SOILS8-0369-3

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/19/89
 Date Analyzed: 02/20/89
 Dilution Factor: 2.0

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|--------------------------------------|------------|--------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol 3200 U |
| 108-95-2 | Phenol 4500 | 100-02-7 | 4-Nitrophenol 4600 |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 660 U | 121-14-2 | 2,4-Dinitrotoluene 2500 |
| 95-57-8 | 2-Chlorophenol 4700 | 84-66-2 | Diethylphthalate 660 U |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenylether 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 890 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 660 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 1800 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 4700 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 660 BU |
| 105-67-9 | 2,4-Dimethylphenol 660 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 3400 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 U |
| 108-83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 1400 | 56-55-3 | Benzo(a)anthracene 660 U |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 BU |
| 87-68-3 | Hexachlorobutadiene 660 U | 117-84-0 | Di-n-octylphthalate 660 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 4500 | 205-99-2 | Benzo(b)fluoranthene 660 U |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 U |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-8 | Benzo(a)pyrene 660 U |
| 88-06-2 | 2,4,6-Trichlorophenol 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol 3200 U | 53-70-3 | Dibenz(a,h)Anthracene 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 U | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 U | | |
| 131-11-3 | Dimethyl Phthalate 660 U | | Nitrobenzene-d5 - SS 62 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 68 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 98 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 68 |
| 83-32-9 | Acenaphthene 2500 | | 2-Fluorophenol - SS 58 |
| | | | 2,4,6-Tribromophenol - SS . . 66 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - surrogate Standard reported as percent recovery.

Form I

B6

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 22002-2MSD
 Client Sample ID: SOILSB-0369-3

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/19/90
 Date Analyzed: 02/20
 Dilution Factor: 2

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|-------------------------------------|------------|-------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol . . . 3200 U |
| 108-95-2 | Phenol 4900 | 109-02-7 | 4-Nitrophenol 5200 |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 660 U | 121-14-2 | 2,4-Dinitrotoluene 2600 - |
| 95-57-8 | 2-Chlorophenol 5200 | 84-66-2 | Diethylphthalate 660 U |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenyl . . . 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 1600 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 660 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 1800 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 4900 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 660 BU |
| 105-67-9 | 2,4-Dimethylphenol 660 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 3000 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 |
| 120-83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 2000 | 56-55-3 | Benzo(a)anthracene 660 U |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 BU |
| 87-68-3 | Hexachlorobutadiene 660 U | 117-84-0 | Di-n-octylphthalate 660 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . 470J | 205-99-2 | Benzo(b)fluoranthene 660 U |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 U |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-8 | Benzo(a)pyrene 660 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . 3200 U | 53-70-3 | Dibenz(a,h)Anthracene . . . 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 U | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 U | | |
| 131-11-3 | Dimethyl Phthalate 660 U | | Nitrobenzene-d5 - SS 71 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 69 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 86 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 72 |
| 83-32-9 | Acenaphthene 2600 | | 2-Fluorophenol - SS 61 |
| | | | 2,4,6-Tribromophenol - SS . . 62 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

1-944

B6

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 22144-5MS
 Client Sample ID: SOIL-0423MS

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/26/89
 Date Analyzed: 02/23/89
 Dilution Factor: 2.0

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|--------------------------------------|------------|--------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol 3200 U |
| 108-95-2 | Phenol 2200 | 100-02-7 | 4-Nitrophenol 2300 J |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 660 U | 121-14-2 | 2,4-Dinitrotoluene 1200 |
| 95-57-8 | 2-Chlorophenol 2200 | 84-66-2 | Diethylphthalate 660 U |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenylether 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 940 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 BU |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 660 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 690 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 2100 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 660 U |
| 105-67-9 | 2,4-Dimethylphenol 550 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 1400 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 U |
| 108-83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 U |
| 108-82-1 | 1,2,4-Trichlorobenzene . . . 930 | 56-55-3 | Benzo(a)anthracene 660 U |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 U |
| 87-68-3 | Hexachlorobutadiene 650 U | 117-84-0 | Di-n-octylphthalate 660 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 2100 | 205-99-2 | Benzo(b)fluoranthene 660 U |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 U |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-3 | Benzo(a)pyrene 660 U |
| 88-06-2 | 2,4,6-Trichlorophenol 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol 3200 U | 53-70-3 | Dibenz(a,h)Anthracene 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 U | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 U | | |
| 131-11-3 | Dimethyl Phthalate 660 U | | Nitrobenzene-d5 - SS 59 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 64 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 75 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 63 |
| 83-32-9 | Acenaphthene 1100 | | 2-Fluorophenol - SS 55 |
| | | | 2,4,6-Tribromophenol - SS . . 57 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

B6

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 22144-5MSD
 Client Sample ID: SOIL-0423MSD

Concentration: LOW
 Sample Matrix: SOIL
 Percent Moisture:

Date Extracted: 01/26/89
 Date Analyzed: 02/23/
 Dilution Factor: 2

SEMIVOLATILE COMPOUNDS

| CAS Number | UG/KG | CAS Number | UG/KG |
|------------|--------------------------------------|------------|--------------------------------------|
| 62-75-9 | N-Nitrosodimethylamine . . . 660 U | 51-28-5 | 2,4-Dinitrophenol 3200 U |
| 108-95-2 | Phenol 2500 | 100-02-7 | 4-Nitrophenol 2600 J |
| 62-53-3 | Aniline 660 U | 132-64-9 | Dibenzofuran 660 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . 660 U | 121-14-2 | 2,4-Dinitrotoluene 1300 |
| 95-57-8 | 2-Chlorophenol 2700 | 84-66-2 | Diethylphthalate 660 U |
| 541-73-1 | 1,3-Dichlorobenzene 660 U | 7005-72-3 | 4-Chlorophenyl-phenylether 660 U |
| 106-46-7 | 1,4-Dichlorobenzene 1100 | 86-73-7 | Fluorene 660 U |
| 100-51-6 | Benzyl Alcohol 660 U | 100-01-6 | 4-Nitroaniline 3200 U |
| 95-50-1 | 1,2-Dichlorobenzene 660 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 3200 U |
| 95-48-7 | 2-Methylphenol 660 U | 86-30-6 | N-Nitrosodiphenylamine (1) 660 BU |
| 108-60-1 | bis(2-Chloroisopropyl)Ether 660 U | 122-66-7 | 1,2-Diphenylhydrazine . . . 660 U |
| 106-44-5 | 4-Methylphenol 660 U | 101-55-3 | 4-Bromophenyl-phenylether 660 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine 820 | 118-74-1 | Hexachlorobenzene 660 U |
| 67-72-1 | Hexachloroethane 660 U | 87-86-5 | Pentachlorophenol 2300 |
| 98-95-3 | Nitrobenzene 660 U | 85-01-8 | Phenanthrene 660 U |
| 78-59-1 | Isophorone 660 U | 120-12-7 | Anthracene 660 U |
| 88-75-5 | 2-Nitrophenol 660 U | 84-74-2 | Di-n-Butylphthalate 660 U |
| 105-67-9 | 2,4-Dimethylphenol 660 U | 206-44-0 | Fluoranthene 660 U |
| 65-85-0 | Benzoic Acid 3200 U | 129-00-0 | Pyrene 1400 |
| 111-91-1 | bis(2-Chloroethoxy)Methane 660 U | 85-68-7 | Butylbenzylphthalate 660 " |
| 120-83-2 | 2,4-Dichlorophenol 660 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . 1300 |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . 1100 | 56-55-3 | Benzo(a)anthracene 660 |
| 91-20-3 | Naphthalene 660 U | 218-01-9 | Chrysene 660 U |
| 106-47-8 | 4-Chloroaniline 660 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 660 U |
| 87-68-3 | Hexachlorobutadiene 660 U | 117-84-0 | Di-n-octylphthalate 660 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . 2400 | 205-99-2 | Benzo(b)fluoranthene 660 U |
| 91-57-6 | 2-Methylnaphthalene 660 U | 207-08-9 | Benzo(k)fluoranthene 660 U |
| 77-47-4 | Hexachlorocyclopentadiene 660 U | 50-32-8 | Benzo(a)pyrene 660 U |
| 88-06-2 | 2,4,6-Trichlorophenol 660 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . 660 U |
| 95-95-4 | 2,4,5-Trichlorophenol 3200 U | 53-70-3 | Dibenz(a,h)Anthracene 660 U |
| 91-58-7 | 2-Chloronaphthalene 660 " | 191-24-2 | Benzo(g,h,i)perylene 660 U |
| 88-74-4 | 2-Nitroaniline 3200 | | |
| 131-11-3 | Dimethyl Phthalate 660 J | | Nitrobenzene-d5 - SS 70 |
| 208-96-8 | Acenaphthylene 660 U | | 2-Fluorobiphenyl - SS 72 |
| 606-20-2 | 2,6-Dinitrotoluene 660 U | | Terphenyl-d14 - SS 81 |
| 99-09-2 | 3-Nitroaniline 3200 U | | Phenol-d5 - SS 72 |
| 83-32-9 | Acenaphthene 1200 | | 2-Fluorophenol - SS 67 |
| | | | 2,4,6-Tribromophenol - SS . . 63 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

B6

HESTON ANALYTICS
1720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-2405

GC/MS SEMI-VOLATILE ORGANIC ANALYSIS

LAB REFERENCE NUMBER 33015016-13
CLIENT SAMPLE ID 21740-9 MS
REPORT DATE 01-21-1989

CLIENT NAME J. CH2M HILL
FILE ID 89M26N0211
BLANK ID
SAMPLE TYPE SOIL/SEDIMENT SOLIDS

DATE SAMPLED
DATE RECEIVED 01/10/89
DATE EXTRACTED
DATE ANALYSED 01/23/89

| | | | |
|--------|------------------------------|------------------------|-----------------------------|
| 330 U | n-nitrosodipropylamine | 330 U | dibenzofuran |
| 4100 | phenol | 3300 | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 4400 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,2-dichlorobenzene | 330 U | fluorene |
| 2400 | 1,4-dichlorobenzene | 500 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 500 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromochlorophenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 330 U | pentachlorophenol |
| 2000 | n-nitrosodipropylamine | 330 U | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 330 U | 1-methyl-2-naphthol |
| 330 U | isochlorobenzene | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 500 U | benzidine |
| 330 U | 2,4-dimethylphenol | 2500 | pyrene |
| 500 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 500 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo[a]anthracene |
| 3300 | 1,2,4-trichlorobenzene | 120 U | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | 1-methyl-2-naphthol |
| 330 U | hexachlorobutadiene | 330 U | benzo[b]fluoranthene |
| 5400 | 4-chloro-2-methylphenol | 330 U | benzo[k]fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo[a]pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno[1,2,3-cd]pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | 1-methyl-2-naphthol |
| 500 U | 2,4,5-trichlorophenol | 330 U | benzo[a]anthracene |
| 330 U | 2-chloronaphthalene | 330 U | benzo[g,h,i]perylene |
| 500 U | 2-nitroaniline | SUPPLEMENTARY RECOVERY | |
| 330 U | diethyl phthalate | 72 | 2-fluorophenol (SS) |
| 330 U | 1-methyl-2-naphthol | 76 | phenol-d5 (SS2) |
| 500 U | 3-nitroaniline | 75 | nitrobenzene-d5 (SS3) |
| 2500 | 1-methyl-2-naphthol | 63 | 2-fluorophenyl |
| 1500 U | 2,4-dinitrophenol | 57 | 2,4,5-tribromophenol (SS5) |
| 7000 | 4-nitrophenol | 75 | p-terphenyl-d14 (SS6) |

RESULTS UNITS ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR

U indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
- indicates an estimated trace value

ANALYST

Ym

APPROVED BY

R.F. Conery

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

0150
LAB REFERENCE NUMBER : 9901S036-20
CLIENT SAMPLE ID : 21740-9MSD
REPORT DATE : 01-27-1989

CLIENT NAME : CH2M HILL
FILE ID : 89M2BN0212
BLANK ID :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED :
DATE ANALYSED : 01/23/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | dibenzofuran |
| 4400 | phenol | 3700 | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 4500 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 2400 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 8000 | pentachlorophenol |
| 2000 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 170 J | di-n-butyl phthalate |
| 330 U | isophorone | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 2300 | pyrene |
| 1600 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo(a)anthracene |
| 3600 | 1,2,4-trichlorobenzene | 146 J | bis(2-ethylhexyl) phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzo(b)fluoranthene |
| 5400 | 4-chloro-3-methylphenol | 330 U | benzo(k)fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno(1,2,3-cd)pyrene |
| 330 U | 2,4,5-trichlorophenol | 330 U | dibenz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 76 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 82 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 73 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 69 | 2-fluorobiphenyl |
| 2600 | acenaphthene | 82 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 67 | p-terphenyl-d14 (SS6) |
| 7100 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J : indicates an estimated trace value.

ANALYST : ym

F-948

OVER BY : R. F. Caney

WESTON ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 99015030-19
CLIENT SAMPLE ID : 21005-0 MS
REPORT DATE : 01-30-1989

CLIENT NAME : CH2M HILL
FILE ID : 89M380210
BLANK ID :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED : 12/21/88
DATE ANALYSED : 01/23/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-diethylaniline | 330 U | dibenzofuran |
| 6400 | phenol | 2400 | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 4600 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 1700 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 4600 | pentachlorophenol |
| 1300 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 61 J | di-n-butyl phthalate |
| 330 U | isophorone | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 3000 | pyrene |
| 1600 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo(a)anthracene |
| 1900 | 1,2,4-trichlorobenzene | 190 J | bis(2-ethylhexyl)phthalate |
| 330 U | asphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzo(b)fluoranthene |
| 5000 | 4-chloro-3-methylphenol | 330 U | benzo(k)fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | indeno(1,2,3-cd)pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 70 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 69 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 55 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 61 | 2-fluorobiphenyl |
| 2500 | acenaphthene | 80 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 67 | p-terphenyl-d14 (SS6) |
| 3900 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
indicates an estimated trace value.

ANALYST :

Y.

F-949

R.F. Carney

VESTOR ANALYTICS
7720 LORRAINE AV. #105
STOCKTON CA 95210 209 957-3405

GC/MS SEMI-VOLATILE ORGANICS ANALYSIS

LAB REFERENCE NUMBER : 8901S038-H20
CLIENT SAMPLE ID : 21005-0 HSD
REPORT DATE : 01-30-1989

02/04/89
BC

CLIENT NAME : CH2N HILL
FILE ID : 89M38H0211
BLANK ID :
SAMPLE TYPE : SOIL/SEDIMENT/SOLIDS

DATE SAMPLED :
DATE RECEIVED : 01/19/89
DATE EXTRACTED : 12/21/88
DATE ANALYSED : 01/23/89

| | | | |
|--------|------------------------------|----------------------|-----------------------------|
| 330 U | n-nitroso-dimethylamine | 330 U | dibenzofuran |
| 5900 | phenol | 2200 | 2,4-dinitrotoluene |
| 330 U | aniline | 330 U | 2,6-dinitrotoluene |
| 330 U | bis(2-chloroethyl) ether | 330 U | diethyl phthalate |
| 4200 | 2-chlorophenol | 330 U | 4-chlorophenyl phenyl ether |
| 330 U | 1,3-dichlorobenzene | 330 U | fluorene |
| 1500 | 1,4-dichlorobenzene | 1600 U | 4-nitroaniline |
| 330 U | benzyl alcohol | 1600 U | 4,6-dinitro-2-methylphenol |
| 330 U | 1,2-dichlorobenzene | 330 U | n-nitrosodiphenylamine |
| 330 U | 2-methylphenol | 330 U | 4-bromophenyl phenyl ether |
| 330 U | bis(2-chloroisopropyl) ether | 330 U | hexachlorobenzene |
| 330 U | 4-methylphenol | 4200 | pentachlorophenol |
| 1300 | n-nitroso-di-n-propylamine | 330 U | phenanthrene |
| 330 U | hexachloroethane | 330 U | anthracene |
| 330 U | nitrobenzene | 63 J | di-n-butyl phthalate |
| 330 U | isophorone | 330 U | fluoranthene |
| 330 U | 2-nitrophenol | 1600 U | benzidine |
| 330 U | 2,4-dimethylphenol | 2700 | pyrene |
| 1600 U | benzoic acid | 330 U | butyl benzyl phthalate |
| 330 U | bis(2-chloroethoxy) methane | 660 U | 3,3'-dichlorobenzidine |
| 330 U | 2,4-dichlorophenol | 330 U | benzo(a)anthracene |
| 1700 | 1,2,4-trichlorobenzene | 120 J | bis(2-ethylhexyl)phthalate |
| 330 U | naphthalene | 330 U | chrysene |
| 330 U | 4-chloroaniline | 330 U | di-n-octyl phthalate |
| 330 U | hexachlorobutadiene | 330 U | benzo(b)fluoranthene |
| 4500 | 4-chloro-3-methylphenol | 330 U | benzo(k)fluoranthene |
| 330 U | 2-methylnaphthalene | 330 U | benzo(a)pyrene |
| 330 U | hexachlorocyclopentadiene | 330 U | aceno(1,2,3-cd)pyrene |
| 330 U | 2,4,6-trichlorophenol | 330 U | dibenz(a,h)anthracene |
| 1600 U | 2,4,5-trichlorophenol | 330 U | benzo(g,h,i)perylene |
| 330 U | 2-chloronaphthalene | SURROGATE & RECOVERY | |
| 1600 U | 2-nitroaniline | 58 | 2-fluorophenol (SS1) |
| 330 U | dimethyl phthalate | 60 | phenol-d5 (SS2) |
| 330 U | acenaphthylene | 47 | nitrobenzene-d5 (SS3) |
| 1600 U | 3-nitroaniline | 54 | 2-fluorobiphenyl |
| 2300 | acenaphthene | 73 | 2,4,6-tribromophenol (SS5) |
| 1600 U | 2,4-dinitrophenol | 76 | p-terphenyl-d14 (SS6) |
| 3900 | 4-nitrophenol | | |

RESULT UNITS : ug/kg (micrograms per kilogram)
Results reported on a wet weight basis.

DILUTION FACTOR : 1

U : indicates the compound was analysed for, but not detected.
The numerical value preceding 'U' is the limit of detection for that compound, based on dilution.
J : indicates an estimated trace value.

ANALYST : Ja

F-950

R. F. Conner

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 22421-2-MS
Client Sample ID: 0442-MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 02/23/89
Date Analyzed: 03/08/89
Dilution Factor: 1.0

SEMI-VOLATILE COMPOUNDS

| CAS Number | | UG/L | | CAS Number | | UG/L |
|------------|-------------------------------|------|---|------------|--------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 | U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 100 | | 100-02-7 | 4-Nitrophenol | 160 |
| 62-53-3 | Aniline | 10 | U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 62 |
| 95-57-8 | 2-Chlorophenol | 110 | | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 48 | | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 38 | | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 | U | 87-86-5 | Pentachlorophenol | 150 |
| 98-95-3 | Nitrobenzene | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 | U | 129-00-0 | Pyrene | 71 |
| 91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 49 | | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 130 | | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 | U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | Nitrobenzene-d5 - SS | 53 |
| 208-96-8 | Acenaphthylene | 10 | U | | 2-Fluorobiphenyl - SS | 57 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Terphenyl-d14 - SS | 67 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | Phenol-d5 - SS | 49 |
| 83-32-9 | Acenaphthene | 60 | | | 2-Fluorophenol - SS | 38 |
| | | | | | 2,4,6-Tribromophenol - SS . . | 61 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
- Surrogate Standard reported as percent recovery.

Form I

F-951

BL

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
 Lab Sample ID: 22421-2-MSD
 Client Sample ID: 0442-MSD

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 02/23/89
 Date Analyzed: 03/08/89
 Dilution Factor: 1.0

SEMI-VOLATILE COMPOUNDS

| CAS Number | | UG/L | | CAS Number | | UG/L |
|------------|-------------------------------|------|---|------------|--------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 | U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 108-95-2 | Phenol | 120 | | 100-02-7 | 4-Nitrophenol | 180 |
| 62-53-3 | Aniline | 10 | U | 132-64-9 | Dibenzofuran | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 79 |
| 95-57-8 | 2-Chlorophenol | 120 | | 84-66-2 | Diethylphthalate | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 70 | | 86-73-7 | Fluorene | 10 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 100-01-6 | 4-Nitroaniline | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 43 | | 118-74-1 | Hexachlorobenzene | 10 U |
| 67-72-1 | Hexachloroethane | 10 | U | 87-86-5 | Pentachlorophenol | 150 |
| 98-95-3 | Nitrobenzene | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 120-12-7 | Anthracene | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 65-85-0 | Benzoic Acid | 50 | U | 129-00-0 | Pyrene | 78 |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 66 | | 56-55-3 | Benzo(a)anthracene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 218-01-9 | Chrysene | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 140 | | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 88-74-4 | 2-Nitroaniline | 50 | U | | | |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | Nitrobenzene-d5 - SS | 73 |
| 208-96-8 | Acenaphthylene | 10 | U | | 2-Fluorobiphenyl - SS | 70 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Terphenyl-d14 - SS | 61 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | Phenol-d5 - SS | 54 |
| 83-32-9 | Acenaphthene | 73 | | | 2-Fluorophenol - SS | 43 |
| | | | | | 2,4,6-Tribromophenol - SS | 60 |

- (1) - Cannot be separated from diphenylamine
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

F-952

116



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: 22601-1MS
Client Sample ID: 0476-MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/13/89
Date Analyzed: 03/21/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | UG/L | CAS Number | UG/L |
|-----------|--------------------------------------|------------|---------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine . . . 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 08-95-2 | Phenol 120 | 100-02-7 | 4-Nitrophenol 130 |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 121-14-2 | 2,4-Dinitrotoluene 71 |
| 5-57-8 | 2-Chlorophenol 140 | 84-66-2 | Diethylphthalate 10 U |
| 41-73-1 | 1,3-Dichlorobenzene 71 | 7005-72-3 | 4-Chlorophenyl-phenylether . . . 10 U |
| 06-46-7 | 1,4-Dichlorobenzene 10 U | 86-73-7 | Fluorene 10 U |
| 00-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 5-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . . 50 U |
| 5-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . . . 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether . . 10 U | 122-66-7 | 1,2-Diphenylhydrazine 10 U |
| 06-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . . 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine . . 55 | 118-74-1 | Hexachlorobenzene 10 U |
| 7-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 160 |
| 8-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 8-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 8-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 05-67-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 5-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 95 |
| 1-11-1 | bis(2-Chloroethoxy)Methane . . 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 20-83-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene 67 | 56-55-3 | Benzo(a)anthracene 10 U |
| 1-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 06-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . . 6 J |
| 7-68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . 130 | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 1-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 7-47-4 | Hexachlorocyclopentadiene . . 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene 10 U |
| 1-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 3-74-4 | 2-Nitroaniline 50 U | | |
| 31-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 66 |
| 08-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 67 |
| 06-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 87 |
| 3-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 67 |
| 3-32-9 | Acenaphthene 72 | | 2-Fluorophenol - SS 63 |
| | | | 2,4,6-Tribromophenol - SS . . . 76 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
Reported value less than quantitation limit.
Surrogate Standard reported as percent recovery.

AB



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: 22601-1MSD
Client Sample ID: 0476-MSD

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/13/8
Date Analyzed: 03/21/8
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS-Number | | UG/L | CAS Number | | UG/L |
|------------|-------------------------------|------|------------|-------------------------------|------|
| 52-75-9 | N-Nitrosodimethylamine . . . | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 100 | 100-02-7 | 4-Nitrophenol | 97 |
| 52-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 70 |
| 5-57-8 | 2-Chlorophenol | 110 | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 67 | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 51 | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 110 |
| 8-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 8-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-85-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 95 |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 67 | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 6 J |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . | 100 | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 3-74-4 | 2-Nitroaniline | 50 U | | | |
| 21-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 64 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 66 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 80 |
| 3-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 58 |
| 3-32-9 | Acenaphthene | 71 | | 2-Fluorophenol - SS | 50 |
| | | | | 2,4,6-Tribromophenol - SS | 60 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

CH2M HILL

Redding
Environmental Laboratory

Form I

1100 Broadway Avenue, P. O. Box 2088
California 96001

916.243.5831

F-954

66



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Sample ID: 22683-1MS
Client Sample ID: 0490-MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/16/89
Date Analyzed: 03/28/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-----------------------------------|------|------------|--------------------------------|------|
| 2-75-9 | N-Nitrosodimethylamine | 10 U | 51-28-5 | 2,4-Dinitrophenol | 50 U |
| 08-95-2 | Phenol | 69 | 100-02-7 | 4-Nitrophenol | 85 |
| 2-53-3 | Aniline | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 90 |
| 5-57-8 | 2-Chlorophenol | 120 | 84-66-2 | Diethylphthalate | 10 U |
| 41-73-1 | 1,3-Dichlorobenzene | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 06-46-7 | 1,4-Dichlorobenzene | 60 | 86-73-7 | Fluorene | 10 U |
| 00-51-6 | Benzyl Alcohol | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 5-50-1 | 1,2-Dichlorobenzene | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 5-48-7 | 2-Methylphenol | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 06-44-5 | 4-Methylphenol | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 48 | 118-74-1 | Hexachlorobenzene | 10 U |
| 7-72-1 | Hexachloroethane | 10 U | 87-86-5 | Pentachlorophenol | 160 |
| 8-95-3 | Nitrobenzene | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 8-59-1 | Isophorone | 10 U | 120-12-7 | Anthracene | 10 U |
| 8-75-5 | 2-Nitrophenol | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 05-67-9 | 2,4-Dimethylphenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 5-5-0 | Benzoic Acid | 50 U | 129-00-0 | Pyrene | 95 |
| 1-1 | bis(2-Chloroethoxy)Methane | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 20-83-2 | 2,4-Dichlorophenol | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene | 65 | 56-55-3 | Benzo(a)anthracene | 10 U |
| 1-20-3 | Naphthalene | 10 U | 218-01-9 | Chrysene | 10 U |
| 06-47-8 | 4-Chloroaniline | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 7-68-3 | Hexachlorobutadiene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 9-50-7 | 4-Chloro-3-methylphenol | 140 | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 1-57-6 | 2-Methylnaphthalene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 7-47-4 | Hexachlorocyclopentadiene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 8-06-2 | 2,4,6-Trichlorophenol | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 50 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 1-58-7 | 2-Chloronaphthalene | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 8-74-4 | 2-Nitroaniline | 50 U | | | |
| 31-11-3 | Dimethyl Phthalate | 10 U | | Nitrobenzene-d5 - SS | 77 |
| 08-96-8 | Acenaphthylene | 10 U | | 2-Fluorobiphenyl - SS | 79 |
| 06-20-2 | 2,6-Dinitrotoluene | 10 U | | Terphenyl-d14 - SS | 85 |
| 9-09-2 | 3-Nitroaniline | 50 U | | Phenol-d5 - SS | 89 |
| 3-32-9 | Acenaphthene | 79 | | 2-Fluorophenol - SS | 94 |
| | | | | 2,4,6-Tribromophenol - SS | 81 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
- Reported value less than quantitation limit.
Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

F-955

Broad Avenue, P. O. Box 2088
Tulsa 74101

916.242.5831



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: 22683-1MSD
Client Sample ID: 0490-MSD

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 03/16/89
Date Analyzed: 03/28/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| AS Number | ug/L | CAS Number | ug/L |
|-----------|--------------------------------------|------------|---------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine . . . 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 08-95-2 | Phenol 100 | 100-02-7 | 4-Nitrophenol 130 |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 121-14-2 | 2,4-Dinitrotoluene 90 |
| 5-57-8 | 2-Chlorophenol 160 | 84-66-2 | Diethylphthalate 10 U |
| 11-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . . . 10 U |
| 06-66-7 | 1,4-Dichlorobenzene 55 | 86-73-7 | Fluorene 10 U |
| 00-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 3-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . . 50 U |
| 3-48-7 | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . . . 10 U |
| 0638-32-9 | bis(2-Chloroisopropyl)Ether . . 10 U | 122-66-7 | 1,2-Diphenylhydrazine 10 U |
| 06-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . . 10 U |
| 11-64-7 | N-Nitroso-Di-n-Propylamine . . 40 | 118-74-1 | Hexachlorobenzene 10 U |
| 1-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 160 |
| 3-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 3-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 3-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 05-67-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 3-85-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 87 |
| 11-91-1 | bis(2-Chloroethoxy)Methane . . 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 00-83-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine 20 U |
| 00-82-1 | 1,2,4-Trichlorobenzene 60 | 56-55-3 | Benzo(a)anthracene 10 U |
| 1-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 06-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . . 10 U |
| 1-68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 1-50-7 | 4-Chloro-3-methylphenol . . . 150 | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 1-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 1-47-4 | Hexachlorocyclopentadiene . . . 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 1-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 10 U |
| 1-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene 10 U |
| 1-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 1-74-4 | 2-Nitroaniline 50 U | | |
| 1-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 72 |
| 1-8-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 81 |
| 1-6-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 78 |
| 1-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 69 |
| 1-32-9 | Acenaphthene 78 | | 2-Fluorophenol - SS 71 |
| | | | 2,4,6-Tribromophenol - SS 89 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding
Environmental Laboratory

F-956

venue, P O Box 2088
me 98001

916 243 5831

DI.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: 22817-1MSD
Client Sample ID: BAFB 0505MSD

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 03/30/89
Date Analyzed: 04/13/89
Dilution Factor: 1.0

SEMI-VOLATILE COMPOUNDS

| AS Number | ug/L | CAS Number | ug/L |
|-----------|--------------------------------------|------------|---------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine . . . 10 U | 51-28-5 | 2,4-Dinitrophenol 50 U |
| 08-95-2 | Phenol 140 | 100-02-7 | 4-Nitrophenol 160 |
| 2-53-3 | Aniline 10 U | 132-64-9 | Dibenzofuran 10 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . 10 U | 121-14-2 | 2,4-Dinitrotoluene 85 |
| 5-57-8 | 2-Chlorophenol 150 | 84-66-2 | Diethylphthalate 10 U |
| 41-73-1 | 1,3-Dichlorobenzene 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether . . . 10 U |
| 06-46-7 | 1,4-Dichlorobenzene 78 | 86-73-7 | Fluorene 10 U |
| 00-51-6 | Benzyl Alcohol 10 U | 100-01-6 | 4-Nitroaniline 50 U |
| 5-50-1 | 1,2-Dichlorobenzene 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol . . . 50 U |
| 5-48- | 2-Methylphenol 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) . . . 10 U |
| 0638-32-9 | bis(2-Chloroisopropyl)Ether . . 10 U | 122-66-7 | 1,2-Diphenylhydrazine 10 U |
| 06-44-5 | 4-Methylphenol 10 U | 101-55-3 | 4-Bromophenyl-phenylether . . . 10 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine . . 49 | 118-74-1 | Hexachlorobenzene 10 U |
| 7-72-1 | Hexachloroethane 10 U | 87-86-5 | Pentachlorophenol 170 |
| 3-95-3 | Nitrobenzene 10 U | 85-01-8 | Phenanthrene 10 U |
| 3-59-1 | Isophorone 10 U | 120-12-7 | Anthracene 10 U |
| 3-75-5 | 2-Nitrophenol 10 U | 84-74-2 | Di-n-Butylphthalate 10 U |
| 57-9 | 2,4-Dimethylphenol 10 U | 206-44-0 | Fluoranthene 10 U |
| 5-0 | Benzoic Acid 50 U | 129-00-0 | Pyrene 100 |
| 11-91-1 | bis(2-Chloroethoxy)Methane . . 10 U | 85-68-7 | Butylbenzylphthalate 10 U |
| 20-83-2 | 2,4-Dichlorophenol 10 U | 91-94-1 | 3,3'-Dichlorobenzidine 20 U |
| 20-82-1 | 1,2,4-Trichlorobenzene 75 | 56-55-3 | Benzo(a)anthracene 10 U |
| 1-20-3 | Naphthalene 10 U | 218-01-9 | Chrysene 10 U |
| 06-47-8 | 4-Chloroaniline 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate . . . 10 U |
| 7-68-3 | Hexachlorobutadiene 10 U | 117-84-0 | Di-n-octylphthalate 10 U |
| 3-50-7 | 4-Chloro-3-methylphenol . . . 140 | 205-99-2 | Benzo(b)fluoranthene 10 U |
| 1-57-6 | 2-Methylnaphthalene 10 U | 207-08-9 | Benzo(k)fluoranthene 10 U |
| 7-47-4 | Hexachlorocyclopentadiene . . 10 U | 50-32-8 | Benzo(a)pyrene 10 U |
| 3-06-2 | 2,4,6-Trichlorophenol 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 10 U |
| 5-95-4 | 2,4,5-Trichlorophenol 50 U | 53-70-3 | Dibenz(a,h)Anthracene 10 U |
| 1-58-7 | 2-Chloronaphthalene 10 U | 191-24-2 | Benzo(g,h,i)perylene 10 U |
| 3-74-4 | 2-Nitroaniline 50 U | | |
| 31-11-3 | Dimethyl Phthalate 10 U | | Nitrobenzene-d5 - SS 83 |
| 08-96-8 | Acenaphthylene 10 U | | 2-Fluorobiphenyl - SS 84 |
| 06-20-2 | 2,6-Dinitrotoluene 10 U | | Terphenyl-d14 - SS 110 |
| 3-09-2 | 3-Nitroaniline 50 U | | Phenol-d5 - SS 96 |
| 3-32-9 | Acenaphthene 86 | | 2-Fluorophenol - SS 64 |
| | | | 2,4,6-Tribromophenol - SS 83 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
~ - Compound was detected in QC blank.
~ - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

laboratory Name: CH2M HILL
 ab Sample ID: 22906-4-MS
 Client Sample ID: BAFB_0522_MS

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 04/06/89
 Date Analyzed: 04/24/89
 Dilution Factor: 2.0

SEMIVOLATILE COMPOUNDS

| AS Number | | ug/L | CAS Number | | ug/L |
|-----------|-------------------------------|-------|------------|--------------------------------|-------|
| 2-75-9 | N-Nitrosodimethylamine . . . | 20 U | 51-28-5 | 2,4-Dinitrophenol | 100 U |
| 08-95-2 | Phenol | 20 U | 100-02-7 | 4-Nitrophenol | 86 J |
| 2-53-3 | Aniline | 20 U | 132-64-9 | Dibenzofuran | 20 U |
| 11-44-4 | bis(2-Chloroethyl)Ether . . . | 20 U | 121-14-2 | 2,4-Dinitrotoluene | 63 |
| 5-57-8 | 2-Chlorophenol | 130 | 84-66-2 | Diethylphthalate | 20 U |
| 41-73-1 | 1,3-Dichlorobenzene | 20 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 20 U |
| 06-46-7 | 1,4-Dichlorobenzene | 37 | 86-73-7 | Fluorene | 20 U |
| 00-51-6 | Benzyl Alcohol | 20 U | 100-01-6 | 4-Nitroaniline | 100 U |
| 5-50-1 | 1,2-Dichlorobenzene | 20 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 100 U |
| 5-48-7 | 2-Methylphenol | 20 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 20 U |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether | 20 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 20 U |
| 06-44-5 | 4-Methylphenol | 20 U | 101-55-3 | 4-Bromophenyl-phenylether | 20 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine | 27 | 118-74-1 | Hexachlorobenzene | 20 U |
| 7-72-1 | Hexachloroethane | 20 U | 87-86-5 | Pentachlorophenol | 120 |
| 8-95-3 | Nitrobenzene | 20 U | 85-01-8 | Phenanthrene | 20 U |
| 8-59-1 | Isophorone | 20 U | 120-12-7 | Anthracene | 20 U |
| 8-75-5 | 2-Nitrophenol | 20 U | 84-74-2 | Di-n-Butylphthalate | 20 U |
| 05-67-9 | 2,4-Dimethylphenol | 20 U | 206-44-0 | Fluoranthene | 20 |
| 5-85-0 | Benzoic Acid | 100 U | 129-00-0 | Pyrene | 76 |
| 11-91-1 | bis(2-Chloroethoxy)Methane | 20 U | 85-68-7 | Butylbenzylphthalate | 20 U |
| 20-83-2 | 2,4-Dichlorophenol | 20 U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 40 U |
| 20-82-1 | 1,2,4-Trichlorobenzene . . . | 45 | 56-55-3 | Benzo(a)anthracene | 20 U |
| 1-20-3 | Naphthalene | 20 U | 218-01-9 | Chrysene | 20 U |
| 06-47-8 | 4-Chloroaniline | 20 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 20 U |
| 7-68-3 | Hexachlorobutadiene | 20 U | 117-84-0 | Di-n-octylphthalate | 20 U |
| 9-50-7 | 4-Chloro-3-methylphenol . . . | 110 | 205-99-2 | Benzo(b)fluoranthene | 20 U |
| 1-57-6 | 2-Methylnaphthalene | 20 U | 207-08-9 | Benzo(k)fluoranthene | 20 U |
| 7-47-4 | Hexachlorocyclopentadiene | 20 U | 50-32-8 | Benzo(a)pyrene | 20 U |
| 3-06-2 | 2,4,6-Trichlorophenol | 20 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 20 U |
| 5-95-4 | 2,4,5-Trichlorophenol | 100 U | 53-70-3 | Dibenz(a,h)Anthracene | 20 U |
| 1-58-7 | 2-Chloronaphthalene | 20 U | 191-24-2 | Benzo(g,h,i)perylene | 20 U |
| 3-74-4 | 2-Nitroaniline | 100 U | | | |
| 31-11-3 | Dimethyl Phthalate | 20 U | | Nitrobenzene-d5 - SS | 38 |
| 08-96-8 | Acenaphthylene | 1 J | | 2-Fluorobiphenyl - SS | 46 |
| 06-20-2 | 2,6-Dinitrotoluene | 20 U | | Terphenyl-d14 - SS | 72 |
| 3-09-2 | 3-Nitroaniline | 100 U | | Phenol-d5 - SS | 71 |
| 3-32-9 | Acenaphthene | 49 | | 2-Fluorophenol - SS | 55 |
| | | | | 2,4,6-Tribromophenol - SS . . | 81 |

- (1) - Cannot be separated from diphenylamine
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.



Engineers
Planners
Economists
Scientists

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL
Lab Sample ID: 22906-4-MSD
Client Sample ID: BAFB 0522 MSD

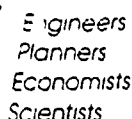
Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 04/06/89
Date Analyzed: 04/25/89
Dilution Factor: 2.0

SEMIVOLATILE COMPOUNDS

| AS Number | ug/L | CAS Number | ug/L |
|-----------|--------------------------------------------|------------|--------------------------------------------|
| 2-75-9 | N-Nitrosodimethylamine 20 U | 51-28-5 | 2,4-Dinitrophenol 100 U |
| 08-95-2 | Phenol 130 | 100-02-7 | 4-Nitrophenol 91 J |
| 2-53-3 | Aniline 20 U | 132-64-9 | Dibenzofuran 20 U |
| 11-44-4 | bis(2-Chloroethyl)Ether 20 U | 121-14-2 | 2,4-Dinitrotoluene 74 |
| 5-57-8 | 2-Chlorophenol 140 | 84-66-2 | Diethylphthalate 20 U |
| 41-73-1 | 1,3-Dichlorobenzene 20 U | 7005-72-3 | 4-Chlorophenyl-phenylether 20 U |
| 06-46-7 | 1,4-Dichlorobenzene 79 | 86-73-7 | Fluorene 20 U |
| 00-51-6 | Benzyl Alcohol 20 U | 100-01-6 | 4-Nitroaniline 100 U |
| 5-50-1 | 1,2-Dichlorobenzene 20 U | 534-52-1 | 4,6-Dinitro-2-methylphenol 100 U |
| 5-48-7 | 2-Methylphenol 20 U | 86-30-6 | N-Nitrosodiphenylamine (1) 2 J |
| 9638-32-9 | bis(2-Chloroisopropyl)Ether 20 U | 122-66-7 | 1,2-Diphenylhydrazine 20 U |
| 06-44-5 | 4-Methylphenol 20 U | 101-55-3 | 4-Bromophenyl-phenylether 20 U |
| 21-64-7 | N-Nitroso-Di-n-Propylamine 52 | 118-74-1 | Hexachlorobenzene 20 U |
| 7-72-1 | Hexachloroethane 20 U | 87-86-5 | Pentachlorophenol 110 |
| 8-95-3 | Nitrobenzene 20 U | 85-01-8 | Phenanthrene 20 U |
| 8-59-1 | Isophorone 20 U | 120-12-7 | Anthracene 20 U |
| 8-75-5 | 2-Nitrophenol 20 U | 84-74-2 | Di-n-Butylphthalate 20 U |
| 05-7-9 | 2,4-Dimethylphenol 20 U | 206-44-0 | Fluoranthene 20 U |
| 1-7-0 | Benzoic Acid 100 U | 129-00-0 | Pyrene 75 |
| 11-91-1 | bis(2-Chloroethoxy)Methane 20 U | 85-68-7 | Butylbenzylphthalate 20 U |
| 20-83-2 | 2,4-Dichlorophenol 20 U | 91-94-1 | 3,3'-Dichlorobenzidine 40 U |
| 20-82-1 | 1,2,4-Trichlorobenzene 70 | 56-55-3 | Benzo(a)anthracene 20 U |
| 1-20-3 | Naphthalene 20 U | 218-01-9 | Chrysene 20 U |
| 06-47-8 | 4-Chloroaniline 20 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate 20 U |
| 7-68-3 | Hexachlorobutadiene 20 U | 117-84-0 | Di-n-octylphthalate 20 U |
| 9-50-7 | 4-Chloro-3-methylphenol 98 | 205-99-2 | Benzo(b)fluoranthene 20 U |
| 1-57-6 | 2-Methylnaphthalene 20 U | 207-08-9 | Benzo(k)fluoranthene 20 U |
| 7-47-4 | Hexachlorocyclopentadiene 20 U | 50-32-8 | Benzo(a)pyrene 20 U |
| 8-06-2 | 2,4,6-Trichlorophenol 20 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene 20 U |
| 5-95-4 | 2,4,5-Trichlorophenol 100 U | 53-70-3 | Dibenz(a,h)Anthracene 20 U |
| 1-58-7 | 2-Chloronaphthalene 20 U | 191-24-2 | Benzo(g,h,i)perylene 20 U |
| 8-74-4 | 2-Nitroaniline 100 U | | |
| 31-11-3 | Dimethyl Phthalate 20 U | | Nitrobenzene-d5 - SS 61 |
| 08-96-8 | Acenaphthylene 20 U | | 2-Fluorobiphenyl - SS 67 |
| 06-20-2 | 2,6-Dinitrotoluene 20 U | | Terphenyl-d14 - SS 61 |
| 9-09-2 | 3-Nitroaniline 100 U | | Phenol-d5 - SS 79 |
| 3-32-9 | Acenaphthene 71 | | 2-Fluorophenol - SS 61 |
| | | | 2,4,6-Tribromophenol - SS 87 |

- (1) - Cannot be separated from diphenylamine
U - Compound analyzed for but not detected.
P - Compound was detected in QC blank.
Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 24185M01
Client Sample ID: 0606MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/01/8
Date Analyzed: 09/23/8
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------------|------|------------|-------------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine | 10 U | 100-02-7 | 4-Nitrophenol | 120 |
| 108-95-2 | Phenol | 100 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 82 |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-51-8 | 2-Chlorophenol | 150 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 103-46-7 | 1,4-Dichlorobenzene | 68 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-70-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 85-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-56-7 | 1,2-Diphenylhydrazine | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 521-54-7 | N-Nitroso-di-n-propylamine | 60 | 87-86-5 | Pentachlorophenol | 190 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-93-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-29-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 92 |
| 65-13-0 | Benzoic Acid | 10 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethyl)ethane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 100-82-1 | 1,2,4-Trichlorobenzene | 64 | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 140 | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 85 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 84 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 54 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 61 |
| 83-32-9 | Acenaphthene | 79 | | 2,4,6-Tribromophenol - SS | 85 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 24185D01
Client Sample ID: 0606MSD

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/01/89
Date Analyzed: 09/23/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|-------------------------------|------|---|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 | U | 100-02-7 | 4-Nitrophenol | 120 |
| 108-95-2 | Phenol | 100 | | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 81 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 150 | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 56 | | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 62 | | 87-86-5 | Pentachlorophenol | 180 |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 88 |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 55 | | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 140 | | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS | 74 |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS | 78 |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 55 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS | 62 |
| 83-32-9 | Acenaphthene | 75 | | | 2,4,6-Tribromophenol - SS . . | 83 |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding Environmental Laboratory, 50

Road, Redding, California 96003

916 244 5227

F-961

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL Contract: S23306
 Lab Code: _____ Case No.: S23306 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0547

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 115 | 58 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 125 | 63 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 52.4 | 52 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 55.6 | 56 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 54.4 | 54 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 141 | 71 | 23 97 |
| Acenaphthene | 100 | 0 | 80.6 | 81 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 149 | 75 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 84.4 | 84 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 165 | 83 | 9-103 |
| Pyrene | 100 | 0 | 110 | 110 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 149 | 75 | -26 | 42 12- 89 |
| 2-Chlorophenol | 200 | 152 | 76 | -19 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 82.8 | 83 | -46 * | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 72.4 | 72 | -25 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 81.2 | 81 | -40 * | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 164 | 82 | -14 | 42 23 97 |
| Acenaphthene | 100 | 92.8 | 93 | -14 | 31 46-118 |
| 4-Nitrophenol | 200 | 172 | 86 * | -14 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 90.2 | 90 | -7 | 38 24- 96 |
| Pentachlorophenol | 200 | 184 | 92 | -10 | 50 9-103 |
| Pyrene | 100 | 115 | 115 | -4 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 2 out of 11 outside limits
 Spike Recovery: 1 out of 22 outside limits

COMMENTS: CLP,23306,,0547,L,W,001,S,,
 BN

FOR V-1
 F-962

1/87 Rev.

25

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL

Contract: S23397

Code: Case No.: S23397 SAS No.: SDG No.: GC-MS

Matrix Spike - EPA Sample No.: BAFB_0570

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|-------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 128 | 64 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 135 | 68 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 70.4 | 70 | 36 97 |
| N-Nitroso-di-n-prop.(1) | 100 | 0 | 68.2 | 68 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 70.4 | 70 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 145 | 73 | 23 97 |
| Acenaphthene | 100 | 0 | 81.2 | 81 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 148 | 74 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 86.0 | 86 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 157 | 79 | 9-103 |
| Pyrene | 100 | 0 | 102 | 102 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|-------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 124 | 62 | 3 | 42 12- 89 |
| 2-Chlorophenol | 200 | 127 | 64 | 6 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 77.8 | 78 | -11 | 28 36 97 |
| N-Nitroso-di-n-prop.(1) | 100 | 68.6 | 69 | -1 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 77.8 | 78 | -11 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 151 | 76 | -4 | 42 23 97 |
| Acenaphthene | 100 | 84.8 | 85 | -5 | 31 46-118 |
| 4-Nitrophenol | 200 | 160 | 80 | -8 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 86.8 | 87 | -1 | 38 24- 96 |
| Pentachlorophenol | 200 | 171 | 86 | -8 | 50 9-103 |
| Pyrene | 100 | 107 | 107 | -5 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP,23397,,0570,L,W,002,S,,
 BN

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL Contract: S23417Lab Code: _____ Case No.: S23417 SAS No.: _____ SDG No.: GC-MSMatrix Spike - EPA Sample No.: METHOD-BLANK

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 91.0 | 46 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 132 | 66 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 67.4 | 67 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 68.2 | 68 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 66.6 | 67 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 149 | 75 | 23 97 |
| Acenaphthene | 100 | 0 | 84.2 | 84 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 94.8 | 47 | 10- 80 |
| 2,4-Dinitrotoluene | 200 | 0 | 86.0 | 86 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 170 | 85 | 9-103 |
| Pyrene | 200 | 0 | 144 | 144 * | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 98.8 | 49 | -6 | 42 12- 89 |
| 2-Chlorophenol | 200 | 137 | 69 | -4 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 44.2 | 44 | 41 * | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 48.6 | 49 | 32 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 47.0 | 47 | 35 * | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 148 | 74 | 1 | 42 23 97 |
| Acenaphthene | 100 | 75.2 | 75 | 11 | 31 46-118 |
| 4-Nitrophenol | 200 | 105 | 53 | -12 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 83.4 | 83 | 4 | 38 24- 96 |
| Pentachlorophenol | 200 | 179 | 90 | -6 | 50 9-103 |
| Pyrene | 100 | 143 | 143 * | 1 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 11 outside limitsSpike Recovery: 2 out of 22 outside limitsCOMMENTS: CLP,,,SBLKW,L,W,RB 6-7-89,S,BLANK,
BN

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL Contract: S23485

Code: _____ Case No.: S23485 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: BAFB 0592

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 113 | 57 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 131 | 66 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 63.8 | 64 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 54.6 | 55 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 62.2 | 62 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 119 | 60 | 23 97 |
| Acenaphthene | 100 | 0 | 73.8 | 74 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 117 | 59 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 73.0 | 73 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 131 | 66 | 9-103 |
| Pyrene | 100 | 0 | 79.0 | 79 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 116 | 58 | -2 | 42 12- 89 |
| 2-Chlorophenol | 200 | 140 | 70 | -6 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 54.4 | 54 | 17 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 51.6 | 52 | 6 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 55.8 | 56 | 10 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 131 | 66 | -10 | 42 23 97 |
| Acenaphthene | 100 | 69.8 | 70 | 6 | 31 46-118 |
| 4-Nitrophenol | 200 | 139 | 70 | -17 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 70.6 | 71 | 3 | 38 24- 96 |
| Pentachlorophenol | 200 | 155 | 78 | -17 | 50 9-103 |
| Pyrene | 100 | 75.8 | 76 | 4 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP,23485,,0592,L,W,003,S,,
BN

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL Contract: S24185
 Lab Code: _____ Case No.: S24185 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: 0606

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 104 | 52 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 152 | 76 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 68 | 68 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 67 | 68 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 63 | 64 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 142 | 71 | 23 97 |
| Acenaphthene | 100 | 0 | 79 | 79 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 122 | 61 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 82 | 82 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 192 | 96 | 9-103 |
| Pyrene | 100 | 0 | 91 | 92 | 26-127 |


| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD | REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|------------------|--------|
| Phenol | 200 | 102 | 51 | 2 | 42 | 12- 89 |
| 2-Chlorophenol | 200 | 145 | 73 | 4 | 40 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 55 | 56 | 19 | 28 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 61 | 62 | 9 | 38 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 55 | 55 | 15 | 28 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 135 | 63 | 4 | 42 | 23 97 |
| Acenaphthene | 100 | 75 | 75 | 5 | 31 | 46-118 |
| 4-Nitrophenol | 200 | 122 | 61 | 0 | 50 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 81 | 81 | 1 | 38 | 24- 96 |
| Pentachlorophenol | 200 | 183 | 92 | 4 | 50 | 9-103 |
| Pyrene | 100 | 88 | 88 | 4 | 31 | 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP, S24185,, 0606, L, W, 24185001, S,,
 BNA


**Engineers
Planners
Economists**
 Labor Sciences **CH2M HILL/LRO**
 Lab Sample ID: **24406M01**
 Client Sample ID: **BAFB 0667MS**

ORGANICS ANALYSIS DATA SHEET


Concentration: LOW Date Extracted: 09/28/89
 Sample Matrix: WATER Date Analyzed: 10/17/89
 Percent Moisture: _____ Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|-------------------------------|------|--|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | | 100-02-7 | 4-Nitrophenol | 180 |
| 108-95-2 | Phenol | 120 | | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | | 121-14-2 | 2,4-Dinitrotoluene | 89 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 35 | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 75 | | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 J |
| 95-48-7 | 2-Methylphenol | 10 U | | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 73 | | 87-86-5 | Pentachlorophenol | 200 |
| 67-72-1 | Hexachloroethane | 10 U | | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | | 129-00-0 | Pyrene | 95 |
| 65-85-0 | Benzoic Acid | 50 U | | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | | 91-94-1 | 3,3'-Dichlorobenzidine . . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | | 56-55-3 | Benzo(a)anthracene | 10 U |
| 100-82-1 | 1,2,4-Trichlorobenzene . . . | 74 | | 218-01-9 | Chrysene | 10 U |
| J-3 | Naphthalene | 10 U | | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 100-47-8 | 4-Chloroaniline | 10 U | | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 110 | | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | | Nitrobenzene-d5 - SS | 91 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | | 2-Fluorobiphenyl - SS | 88 |
| 208-96-8 | Acenaphthylene | 10 U | | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | | Phenol-d5 - SS | 62 |
| 99-09-2 | 3-Nitroaniline | 50 U | | | 2-Fluorophenol - SS | 30 |
| 83-32-9 | Acenaphthene | 87 | | | 2,4,6-Tribromophenol - SS . . | 45 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I


Engineers
Planners
Economists
Scientists
 Labor CH2M HILL/LRO
 Lab Sample ID: 24406001
 Client Sample ID: BAFB 0667MSD

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW Date Extracted: 09/28/89
 Sample Matrix: WATER Date Analyzed: 10/17/89
 Percent Moisture: _____ Dilution Factor: 1.0

SEMI-VOLATILE COMPOUNDS

| CAS Number | ug/L | CAS Number | ug/L |
|---------------------------------------|------|-------------------------------------------|------|
| 62-75-9 N-Nitrosodimethylamine . . | 10 U | 100-02-7 4-Nitrophenol | 170 |
| 108-95-2 Phenol | 110 | 132-64-9 Dibenzofuran | 10 U |
| 62-53-3 Aniline | 10 U | 121-14-2 2,4-Dinitrotoluene | 83 |
| 111-44-4 bis(2-Chloroethyl)Ether . . | 10 U | 84-66-2 Diethylphthalate | 10 U |
| 95-57-8 2-Chlorophenol | 55 | 7005-72-3 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 Fluorene | 10 U |
| 106-46-7 1,4-Dichlorobenzene . . . | 64 | 100-01-6 4-Nitroaniline | 50 U |
| 100-51-6 Benzyl Alcohol | 10 U | 534-52-1 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 N-Nitrosodiphenylamine (1) | 6 J |
| 95-48-7 2-Methylphenol | 10 U | 122-66-7 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 4-Methylphenol | 10 U | 118-74-1 Hexachlorobenzene | 10 U |
| 621-64-7 N-Nitroso-di-n-propylamine | 64 | 87-86-5 Pentachlorophenol | 180 |
| 67-72-1 Hexachloroethane | 10 U | 85-01-8 Phenanthrene | 10 U |
| 98-95-3 Nitrobenzene | 10 U | 120-12-7 Anthracene | 10 U |
| 78-59-1 Isophorone | 10 U | 84-74-2 Di-n-Butylphthalate | 10 U |
| 88-75-5 2-Nitrophenol | 10 U | 206-44-0 Fluoranthene | 10 U |
| 105-67-9 2,4-Dimethylphenol | 10 U | 129-00-0 Pyrene | 88 |
| 65-85-0 Benzoic Acid | 50 U | 85-68-7 Butylbenzylphthalate | 10 U |
| 111-91-1 bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 2,4-Dichlorophenol | 10 U | 56-55-3 Benzo(a)anthracene | 10 U |
| 120-82-1 1,2,4-Trichlorobenzene . . . | 65 | 218-01-9 Chrysene | 10 U |
| 91-20-3 Naphthalene | 10 U | 117-81-7 bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 4-Chloroaniline | 10 U | 117-84-0 Di-n-octylphthalate | 10 U |
| 87-68-3 Hexachlorobutadiene | 10 U | 205-99-2 benzo(b)fluoranthene | 10 U |
| 59-50-7 4-Chloro-3-methylphenol . . | 95 | 207-08-9 Benzo(k)fluoranthene | 10 U |
| 91-57-6 2-Methylnaphthalene | 10 U | 50-32-8 Benzo(a)pyrene | 10 U |
| 77-47-4 Hexachlorocyclopentadiene | 10 U | 193-39-5 Indeno(1,2,3-cd)Pyrene | 10 U |
| 88-06-2 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 2,4,5-Trichlorophenol . . . | 50 U | 191-24-2 Benzo(g,h,i)perylene | 10 U |
| 91-58-7 2-Chloronaphthalene | 10 U | | |
| 88-74-4 2-Nitroaniline | 50 U | Nitrobenzene-d5 - SS | 83 |
| 131-11-3 Dimethyl Phthalate | 10 U | 2-Fluorobiphenyl - SS | 79 |
| 208-96-8 Acenaphthylene | 10 U | Terphenyl-di4 - SS | 110 |
| 606-20-2 2,6-Dinitrotoluene | 10 U | Phenol-d5 - SS | 55 |
| 99-09-2 3-Nitroaniline | 50 U | 2-Fluorophenol - SS | 27 |
| 83-32-9 Acenaphthene | 77 | 2,4,6-Tribromophenol - SS | 40 |
| 51-28-5 2,4-Dinitrophenol | 50 U | | |

- (1) - Cannot be separated from diphenylamine.
- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- J - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Form I

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24406
 Code: _____ Case No.: S24406 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0667

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 123 | 62 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 35.2 | 18 * | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 75.4 | 75 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 73.2 | 73 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 73.6 | 74 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 106 | 53 | 23 97 |
| Acenaphthene | 100 | 0 | 87.4 | 87 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 179 | 90 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 89.2 | 89 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 198 | 99 | 9-103 |
| Pyrene | 100 | 0 | 94.8 | 95 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 113 | 56 | 10 | 42 12- 89 |
| 2-Chlorophenol | 200 | 54.8 | 27 | -40 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 63.8 | 64 | 16 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 64.4 | 64 | 13 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 65.4 | 65 | 13 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 94.8 | 47 | 12 | 42 23 97 |
| Acenaphthene | 100 | 77.4 | 77 | 12 | 31 46-118 |
| 4-Nitrophenol | 200 | 167 | 84 * | 7 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 83.4 | 83 | 7 | 38 24- 96 |
| Pentachlorophenol | 200 | 183 | 92 | 7 | 50 9-103 |
| Pyrene | 100 | 88.0 | 88 | 8 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

* Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 3 out of 22 outside limits

COMMENTS: CLP, S24406, , BAFB 0667, L, W, 24406001, S, EPA,
 BN



Engineers
Planners
Economists

Laboratory: CH2M HILL/LRD
Lab Sample ID: 24350M05
Client Sample ID: BAFB 0654MS

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 09/22/89
Date Analyzed: 10/10/89
Dilution Factor:

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|------------------------------|------|---|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 | U | 100-02-7 | 4-Nitrophenol | 130 |
| 108-95-2 | Phenol | 150 | | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 92 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 160 | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 63 | | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 60 | | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 62 | | 87-86-5 | Pentachlorophenol | 160 |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 110 |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 64 | | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 7 J |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 | U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 150 | | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS . . . | 89 |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS . . . | 96 |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS | 150 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 87 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS | 82 |
| 83-32-9 | Acenaphthene | 89 | | | 2,4,6-Tribromophenol - SS | 95 |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

Engineers
Planners
Economists
CH2M HILL/LRO
Lab Sample ID: 24350005
Client Sample ID: BAFB 0654MSD

ORGANICS ANALYSIS DATA SHEET

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____
Date Extracted: 09/22/89
Date Analyzed: 10/11/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|-----------------------------|------|---|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 | U | 100-02-7 | 4-Nitrophenol | 110 |
| 108-95-2 | Phenol | 120 | | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 96 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 130 | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 82 | | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 J |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 70 | | 87-86-5 | Pentachlorophenol | 150 |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 120 |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 83 | | 218-01-9 | Chrysene | 10 U |
| 1-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| -47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 140 | | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 | U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS . . . | 93 |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS . . | 100 |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS . . . | 140 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 61 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS . . . | 56 |
| 83-32-9 | Acenaphthene | 97 | | | 2,4,6-Tribromophenol - SS | 88 |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Redding Environmental Laboratory, 5090 Caterpillar Road, Redding, California 96003

916.244.5227

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24350
 Lab Code: _____ Case No.: S24350 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0654

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 153 | 76 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 163 | 82 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 59.6 | 60 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 61.6 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 64.0 | 64 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 149 | 74 | 23 97 |
| Acenaphthene | 100 | 0 | 86.8 | 89 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 128 | 64 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 91.8 | 92 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 165 | 82 | 9-103 |
| Pyrene | 100 | 0 | 111 | 111 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 115 | 58 | 27 | 42 12- 89 |
| 2-Chlorophenol | 200 | 131 | 66 | 22 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 81.6 | 82 | -31 * | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 70.4 | 70 | -12 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 83.2 | 83 | -26 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 136 | 68 | 8 | 42 23 97 |
| Acenaphthene | 100 | 96.6 | 97 | -9 | 31 46-118 |
| 4-Nitrophenol | 200 | 105 | 52 | 21 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 95.8 | 96 | -4 | 38 24- 96 |
| Pentachlorophenol | 200 | 152 | 76 | 8 | 50 9-103 |
| Pyrene | 100 | 117 | 117 | -5 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 1 out of 11 outside limits
 Spike Recovery: 0 out of 22 outside limits

COMMENTS: CLP, S24350, , BAFB 0654, L, W, 24350005, S, EPA,
 BNA



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Sample ID: 24304M02
Client Sample ID: BAFB_637MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 09/18/89
Date Analyzed: 10/02/89
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | | CAS Number | | ug/L |
|------------|------------------------------|------|---|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 | U | 100-02-7 | 4-Nitrophenol | 130 |
| 108-95-2 | Phenol | 120 | | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 | U | 121-14-2 | 2,4-Dinitrotoluene | 85 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 | U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 130 | | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 78 | | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 | U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 | U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 | U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 | U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 73 | | 87-86-5 | Pentachlorophenol | 120 |
| 67-72-1 | Hexachloroethane | 10 | U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 | U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 | U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 | U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U | 129-00-0 | Pyrene | 96 |
| 65-85-0 | Benzoic Acid | 50 | U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 91-1 | bis(2-Chloroethoxy)Methane | 10 | U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 91-83-2 | 2,4-Dichlorophenol | 10 | U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 71 | | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 | U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 | U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 | U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 98 | | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 | U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 50 | U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U | | | |
| 88-74-4 | 2-Nitroaniline | 50 | U | | Nitrobenzene-d5 - SS | 93 |
| 131-11-3 | Dimethyl Phthalate | 10 | U | | 2-Fluorobiphenyl - SS | 87 |
| 208-96-8 | Acenaphthylene | 10 | U | | Terphenyl-d14 - SS | 120 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U | | Phenol-d5 - SS | 65 |
| 99-09-2 | 3-Nitroaniline | 50 | U | | 2-Fluorophenol - SS | 61 |
| 83-32-9 | Acenaphthene | 82 | | | 2,4,6-Tribromophenol - SS . . | 42 |
| 51-28-5 | 2,4-Dinitrophenol | 50 | U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

CH2M HILL

Reading Environmental Laboratory, 5090

Road, Reading, California 96003

916 244 5227

F-973

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M Hill
Lab Sample ID: 24304D02
Client Sample ID: BAFB 0637MSD

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 09/18/8
Date Analyzed: 10/02/85
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|---------------------------------------|------|------------|--------------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine | 10 U | 100-02-7 | 4-Nitrophenol | 150 |
| 108-95-2 | Phenol | 130 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 85 |
| 111-44-4 | bis(2-Chloroethyl)Ether | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 140 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 76 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 10 U |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 71 | 87-86-5 | Pentachlorophenol | 120 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 90 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 69 | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol | 95 | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 53-70-3 | Dibenz(a,h)Anthracene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 50 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 88 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 80 |
| 208-26-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 69 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 64 |
| 83-32-9 | Acenaphthene | 80 | | 2,4,6-Tribromophenol - SS | 35 |
| 51-28-5 | 2,4-Dinitrophenol | 50 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC Blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL Contract: S24304Code: Case No.: S24304 SAS No.: SDG No.: GC-MSMatrix Spike - EPA Sample No.: BAFB_0637

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 115 | 58 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 131 | 66 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 78.2 | 78 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 73.0 | 73 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 71.4 | 71 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 98.0 | 49 | 23 17 |
| Acenaphthene | 100 | 0 | 81.6 | 82 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 132 | 66 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 85.6 | 86 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 121 | 61 | 9-103 |
| Pyrene | 100 | 0 | 96.2 | 96 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 127 | 64 | -10 | 42 12- 89 |
| 2-Chlorophenol | 200 | 141 | 71 | -7 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 75.8 | 76 | 3 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 70.6 | 71 | 3 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 69.2 | 69 | 3 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 95.0 | 48 | 2 | 42 23 97 |
| Acenaphthene | 100 | 80.0 | 80 | 2 | 31 46-118 |
| 4-Nitrophenol | 200 | 149 | 75 | -13 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 84.8 | 85 | 1 | 38 24- 96 |
| Pentachlorophenol | 200 | 116 | 58 | 5 | 50 9-103 |
| Pyrene | 100 | 90.2 | 90 | 6 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limitsSpike Recovery: 0 out of 22 outside limitsCOMMENTS: CLP, S24304,, 0637, L, W, 24304002, S,,
BNA

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24868M01
 Client Sample ID: BAFB 0680MS

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/16/89
 Date Analyzed: 11/22/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|-----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 190 |
| 108-95-2 | Phenol | 160 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 70 |
| 111-44-7 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 180 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 48 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 7 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 52 | 87-86-5 | Pentachlorophenol | 190 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 87 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 51 | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 11 B |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 150 | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 64 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . . | 65 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 91 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 71 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 71 |
| 83-32-9 | Acenaphthene | 70 | | 2,4,6-Tribromophenol - SS | 70 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-976

13

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24868D01
 Sent Sample ID: BAFB 0680MSD

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/16/89
 Date Analyzed: 11/22/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|------------------------------|------|------------|-------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 190 |
| 108-95-2 | Phenol | 190 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 87 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 210 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 50 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 17 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 7 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 68 | 87-86-5 | Pentachlorophenol | 200 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 10 U |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 100 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 54 | 218-01-9 | Chrysene | 10 U |
| 11-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 14 B |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . | 180 | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 67 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 72 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 505-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 79 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 77 |
| 83-32-9 | Acenaphthene | 82 | | 2,4,6-Tribromophenol - SS . . | 70 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

(1) - Cannot be separated from diphenylamine.

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Form I

F-977

RS

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24868
 Lab Code: _____ Case No.: S24868 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0680

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 164 | 82 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 180 | 90 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 48.2 | 48 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 52.0 | 52 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 51.2 | 51 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 154 | 77 | 23 97 |
| Acenaphthene | 100 | 0 | 70.4 | 70 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 186 | 93 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 69.6 | 70 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 187 | 94 | 9-103 |
| Pyrene | 100 | 0 | 87.2 | 87 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 187 | 94 * | -14 | 42 12- 89 |
| 2-Chlorophenol | 200 | 206 | 103 | -13 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 49.8 | 50 | -4 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 67.8 | 68 | -27 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 53.8 | 54 | -6 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 181 | 90 | -16 | 42 23 97 |
| Acenaphthene | 100 | 82.0 | 82 | -16 | 31 46-118 |
| 4-Nitrophenol | 200 | 188 | 94 * | -1 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 87.4 | 87 | -22 | 38 24- 96 |
| Pentachlorophenol | 200 | 204 | 102 | -8 | 50 9-103 |
| Pyrene | 100 | 105 | 105 | -19 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 3 out of 22 outside limits

COMMENTS: CLP, S24868, , 0680, L, W, 24868001, S, EPA,
 BN

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24939

Code: _____ Case No.: S24939 SAS No.: _____ SDG No.: GC-MS

Matrix Spike - EPA Sample No.: BAFB 0702

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 168 | 84 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 181 | 90 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 53.8 | 54 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 61.8 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 58.0 | 58 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 175 | 88 | 23 97 |
| Acenaphthene | 100 | 0 | 78.8 | 79 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 189 | 94 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 86.8 | 87 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 204 | 102 | 9-103 |
| Pyrene | 100 | 0 | 105 | 105 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS | |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------|--------|
| | | | | | RPD | REC. |
| Phenol | 200 | 185 | 92 * | -9 | 42 | 12- 89 |
| 2-Chlorophenol | 200 | 199 | 100 | -11 | 40 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 52.6 | 53 | 2 | 28 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 72.2 | 72 | -15 | 38 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 61.6 | 62 | -7 | 28 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 192 | 96 | -9 | 42 | 23 97 |
| Acenaphthene | 100 | 87.8 | 88 | -11 | 31 | 46-118 |
| 4-Nitrophenol | 200 | 222 | 111 * | -17 | 50 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 96.6 | 97 * | -11 | 38 | 24- 96 |
| Pentachlorophenol | 200 | 220 | 110 * | -8 | 50 | 9-103 |
| Pyrene | 100 | 110 | 110 | -5 | 31 | 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limits

Spike Recovery: 5 out of 22 outside limits

COMMENTS: CLP, S24939, , 0702, L, W, 24939003, S, EPA,
BN

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24934
 Lab Code: _____ Case No.: S24934 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0699

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 150 | 75 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 166 | 83 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 45.6 | 46 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 61.8 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 61.2 | 61 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 155 | 78 | 23 97 |
| Acenaphthene | 100 | 0 | 90.6 | 91 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 165 | 82 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 94.0 | 94 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 185 | 92 | 9-103 |
| Pyrene | 100 | 0 | 112 | 112 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS | |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------|--------|
| | | | | | RPD | REC. |
| Phenol | 200 | 126 | 63 | 17 | 42 | 12- 89 |
| 2-Chlorophenol | 200 | 125 | 62 | 29 | 40 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 57.0 | 57 | -21 | 28 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 64.2 | 64 | -3 | 38 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 66.8 | 67 | -9 | 28 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 168 | 84 | -7 | 42 | 23 97 |
| Acenaphthene | 100 | 89.4 | 89 | 2 | 31 | 46-118 |
| 4-Nitrophenol | 200 | 234 | 117 * | -35 | 50 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 96.8 | 97 * | -3 | 38 | 24- 96 |
| Pentachlorophenol | 200 | 240 | 120 * | -26 | 50 | 9-103 |
| Pyrene | 100 | 109 | 109 | 3 | 31 | 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 4 out of 22 outside limits

COMMENTS: CLP, S24934, , BAFB 0699, L, W, 23934001, S, EPA,
 BN

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24934
 Lab Code: _____ Case No.: S24934 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0699

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 150 | 75 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 166 | 83 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 45.6 | 46 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 61.8 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 61.2 | 61 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 155 | 78 | 23 97 |
| Acenaphthene | 100 | 0 | 90.6 | 91 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 165 | 82 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 94.0 | 94 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 185 | 92 | 9-103 |
| Pyrene | 100 | 0 | 112 | 112 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 126 | 63 | 17 | 42 12- 89 |
| 2-Chlorophenol | 200 | 125 | 62 | 29 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 57.0 | 57 | -21 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 64.2 | 64 | -3 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 66.8 | 67 | -9 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 168 | 84 | -7 | 42 23 97 |
| Acenaphthene | 100 | 89.4 | 89 | 2 | 31 46-118 |
| 4-Nitrophenol | 200 | 234 | 117 * | -35 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 96.8 | 97 * | -3 | 38 24- 96 |
| Pentachlorophenol | 200 | 240 | 120 * | -26 | 50 9-103 |
| Pyrene | 100 | 109 | 109 | 3 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 4 out of 22 outside limits

COMMENTS: CLP, S24934, , BAFB 0699, L, W, 23934001, S, EPA,
 BN

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24939M03
 Client Sample ID: BAFB 0702 MS

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/22/89
 Date Analyzed: 12/14/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-------------------------------|------|------------|--------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . . | 10 U | 100-02-7 | 4-Nitrophenol | 190 |
| 108-95-2 | Phenol | 170 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 87 |
| 111-44-4 | bis(2-Chloroethyl)Ether . . . | 10 U | 84-66-2 | Diethylphthalate | 9 BJ |
| 95-57-8 | 2-Chlorophenol | 180 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene | 54 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 8 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 62 | 87-86-5 | Pentachlorophenol | 200 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 8 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 100 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . . | 58 | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 7 J |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . . . | 180 | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 U | 191-24-2 | Benzo(g,h,i)perylene | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS | 66 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS | 71 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 62 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS | 57 |
| 83-32-9 | Acenaphthene | 79 | | 2,4,6-Tribromophenol - SS . . | 61 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
 U - Compound analyzed for but not detected.
 B - Compound was detected in QC blank.
 J - Reported value less than quantitation limit.
 SS - Surrogate Standard reported as percent recovery.

Form I

F-982

25

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 24939D03
 Int Sample ID: BAFB 0702 MSD

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 11/22/89
 Date Analyzed: 12/14/89
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 220 |
| 108-95-2 | Phenol | 180 | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 97 |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 6 BJ |
| 95-57-8 | 2-Chlorophenol | 200 | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 53 | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 6 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 72 | 87-86-5 | Pentachlorophenol | 220 |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 5 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 110 |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 83-2 | 2,4-Dichlorophenol | 10 U | 218-01-9 | Chrysene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 62 | 117-31-7 | bis(2-Ethylhexyl)Phthalate | 9 J |
| 91-20-3 | Naphthalene | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 106-47-8 | 4-Chloroaniline | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 190 | 50-32-8 | Benzo(a)pyrene | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | | | |
| 91-58-7 | 2-Chloronaphthalene . . . | 10 U | | Nitrobenzene-d5 - SS . . . | 73 |
| 88-74-4 | 2-Nitroaniline | 50 U | | 2-Fluorobiphenyl - SS . . | 76 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | Terphenyl-d14 - SS | 110 |
| 208-96-8 | Acenaphthylene | 10 U | | Phenol-d5 - SS | 65 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | 2-Fluorophenol - SS . . . | 60 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2,4,6-Tribromophenol - SS | 64 |
| 93-32-9 | Acenaphthene | 88 | | | |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

(1) - Cannot be separated from diphenylamine.

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Form I

F-983

25

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S24939
 Lab Code: _____ Case No.: S24939 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0702

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 168 | 84 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 181 | 90 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 53.8 | 54 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 61.8 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 58.0 | 58 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 175 | 88 | 23 97 |
| Acenaphthene | 100 | 0 | 78.8 | 79 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 189 | 94 * | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 86.8 | 87 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 204 | 102 | 9-103 |
| Pyrene | 100 | 0 | 105 | 105 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD | REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|------------------|--------|
| Phenol | 200 | 185 | 92 * | -9 | 42 | 12- 89 |
| 2-Chlorophenol | 200 | 199 | 100 | -11 | 40 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 52.6 | 53 | 2 | 28 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 72.2 | 72 | -15 | 38 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 61.6 | 62 | -7 | 28 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 192 | 96 | -9 | 42 | 23 97 |
| Acenaphthene | 100 | 87.8 | 88 | -11 | 31 | 46-118 |
| 4-Nitrophenol | 200 | 222 | 111 * | -17 | 50 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 96.6 | 97 * | -11 | 38 | 24- 96 |
| Pentachlorophenol | 200 | 220 | 110 * | -8 | 50 | 9-103 |
| Pyrene | 100 | 110 | 110 | -5 | 31 | 26-127 |

(1) N-Nitroso-di-n-propylamine

= Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 5 out of 22 outside limits

COMMENTS: CLP,S24939,,0702,L,W,24939003,S,EPA,
 BN

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
Sample ID: 25088M02
at Sample ID: BAFB 0727MS

Concentration: LOW
Sample Matrix: WATER
Percent Moisture:

Date Extracted: 12/06/89
Date Analyzed: 01/17/90
Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|------------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichloroben...ne . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 11 B |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate | 7 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 33-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 7 J |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate | 10 U |
| 87-68-3 | Hexachlorobutadiene | 10 U | 205-99-2 | Benzo(b)fluoranthene | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene | 10 U |
| 91-57-6 | 2-Methylnaphthalene | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-58-7 | 2-Chloronaphthalene | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 63 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 74 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS | 110 |
| 506-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 54 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 51 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 80 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

- (1) - Cannot be separated from diphenylamine.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.
SS - Surrogate Standard reported as percent recovery.

Form I

F-985

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/LRD
 Lab Sample ID: 25088002
 Client Sample ID: BAFB 0727MSD

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture: _____

Date Extracted: 12/06/89
 Date Analyzed: 01/17/90
 Dilution Factor: 1.0

SEMIVOLATILE COMPOUNDS

| CAS Number | | ug/L | CAS Number | | ug/L |
|------------|-----------------------------|------|------------|----------------------------|------|
| 62-75-9 | N-Nitrosodimethylamine . . | 10 U | 100-02-7 | 4-Nitrophenol | 10 U |
| 108-95-2 | Phenol | 10 U | 132-64-9 | Dibenzofuran | 10 U |
| 62-53-3 | Aniline | 10 U | 121-14-2 | 2,4-Dinitrotoluene | 10 U |
| 111-44-4 | bis(2-Chloroethyl)Ether . | 10 U | 84-66-2 | Diethylphthalate | 10 U |
| 95-57-8 | 2-Chlorophenol | 10 U | 7005-72-3 | 4-Chlorophenyl-phenylether | 10 U |
| 541-73-1 | 1,3-Dichlorobenzene . . . | 10 U | 86-73-7 | Fluorene | 10 U |
| 106-46-7 | 1,4-Dichlorobenzene . . . | 10 U | 100-01-6 | 4-Nitroaniline | 50 U |
| 100-51-6 | Benzyl Alcohol | 10 U | 534-52-1 | 4,6-Dinitro-2-methylphenol | 10 U |
| 95-50-1 | 1,2-Dichlorobenzene . . . | 10 U | 86-30-6 | N-Nitrosodiphenylamine (1) | 8 BJ |
| 95-48-7 | 2-Methylphenol | 10 U | 122-66-7 | 1,2-Diphenylhydrazine . . | 10 U |
| 108-60-1 | bis(2-Chloroisopropyl)Ether | 10 U | 101-55-3 | 4-Bromophenyl-phenylether | 10 U |
| 106-44-5 | 4-Methylphenol | 10 U | 118-74-1 | Hexachlorobenzene | 10 U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 U | 87-86-5 | Pentachlorophenol | 50 U |
| 67-72-1 | Hexachloroethane | 10 U | 85-01-8 | Phenanthrene | 10 U |
| 98-95-3 | Nitrobenzene | 10 U | 120-12-7 | Anthracene | 10 U |
| 78-59-1 | Isophorone | 10 U | 84-74-2 | Di-n-Butylphthalate . . . | 6 BJ |
| 88-75-5 | 2-Nitrophenol | 10 U | 206-44-0 | Fluoranthene | 10 U |
| 105-67-9 | 2,4-Dimethylphenol | 10 U | 129-00-0 | Pyrene | 10 U |
| 65-85-0 | Benzoic Acid | 50 U | 85-68-7 | Butylbenzylphthalate . . . | 10 U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 10 U | 91-94-1 | 3,3'-Dichlorobenzidine . . | 20 U |
| 120-83-2 | 2,4-Dichlorophenol | 10 U | 56-55-3 | Benzo(a)anthracene | 10 U |
| 120-82-1 | 1,2,4-Trichlorobenzene . . | 10 U | 218-01-9 | Chrysene | 10 U |
| 91-20-3 | Naphthalene | 10 U | 117-81-7 | bis(2-Ethylhexyl)Phthalate | 9 J |
| 106-47-8 | 4-Chloroaniline | 10 U | 117-84-0 | Di-n-octylphthalate . . . | 10 U |
| 87-68-3 | Hexachlorobutadiene . . . | 10 U | 205-99-2 | Benzo(b)fluoranthene . . . | 10 U |
| 59-50-7 | 4-Chloro-3-methylphenol . | 10 U | 207-08-9 | Benzo(k)fluoranthene . . . | 10 U |
| 91-57-6 | 2-Methylnaphthalene . . . | 10 U | 50-32-8 | Benzo(a)pyrene | 10 U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 U | 193-39-5 | Indeno(1,2,3-cd)Pyrene . . | 10 U |
| 88-06-2 | 2,4,6-Trichlorophenol . . | 10 U | 53-70-3 | Dibenz(a,h)Anthracene . . | 10 U |
| 95-95-4 | 2,4,5-Trichlorophenol . . | 10 U | 191-24-2 | Benzo(g,h,i)perylene . . . | 10 U |
| 91-53-7 | 2-Chloronaphthalene . . . | 10 U | | | |
| 88-74-4 | 2-Nitroaniline | 50 U | | Nitrobenzene-d5 - SS . . . | 62 |
| 131-11-3 | Dimethyl Phthalate | 10 U | | 2-Fluorobiphenyl - SS . . | 72 |
| 208-96-8 | Acenaphthylene | 10 U | | Terphenyl-d14 - SS . . . | 110 |
| 606-20-2 | 2,6-Dinitrotoluene | 10 U | | Phenol-d5 - SS | 38 |
| 99-09-2 | 3-Nitroaniline | 50 U | | 2-Fluorophenol - SS . . . | 34 |
| 83-32-9 | Acenaphthene | 10 U | | 2,4,6-Tribromophenol - SS | 84 |
| 51-28-5 | 2,4-Dinitrophenol | 10 U | | | |

(1) - Cannot be separated from diphenylamine.

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

J - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Form I

F-986

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/LRD Contract: S25088
 Lab Code: _____ Case No.: S25088 SAS No.: _____ SDG No.: GC-MS
 Matrix Spike - EPA Sample No.: BAFB 0727

| COMPOUND | SPIKE
ADDED
(ug/L) | SAMPLE
CONCENTRATION
(ug/L) | MS
CONCENTRATION
(ug/L) | MS
%
REC # | QC
LIMITS
REC. |
|--------------------------|--------------------------|-----------------------------------|-------------------------------|------------------|----------------------|
| Phenol | 200 | 0 | 111 | 56 | 12- 89 |
| 2-Chlorophenol | 200 | 0 | 162 | 81 | 27-123 |
| 1,4-Dichlorobenzene | 100 | 0 | 55.0 | 55 | 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 0 | 62.2 | 62 | 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 0 | 61.2 | 61 | 39 98 |
| 4-Chloro-3-methylphenol | 200 | 0 | 158 | 79 | 23 97 |
| Acenaphthene | 100 | 0 | 83.6 | 84 | 46-118 |
| 4-Nitrophenol | 200 | 0 | 152 | 76 | 10- 80 |
| 2,4-Dinitrotoluene | 100 | 0 | 83.8 | 84 | 24- 96 |
| Pentachlorophenol | 200 | 0 | 208 | 104 * | 9-103 |
| Pyrene | 100 | 0 | 104 | 104 | 26-127 |

| COMPOUND | SPIKE
ADDED
(ug/L) | MSD
CONCENTRATION
(ug/L) | MSD
%
REC # | %
RPD # | QC LIMITS
RPD REC. |
|--------------------------|--------------------------|--------------------------------|-------------------|------------|-----------------------|
| Phenol | 200 | 77.8 | 39 | 36 | 42 12- 89 |
| 2-Chlorophenol | 200 | 115 | 58 | 33 | 40 27-123 |
| 1,4-Dichlorobenzene | 100 | 56.8 | 57 | -4 | 28 36 97 |
| N-Nitroso-di-n-prop. (1) | 100 | 63.6 | 64 | -3 | 38 41 116 |
| 1,2,4-Trichlorobenzene | 100 | 60.8 | 61 | 0 | 28 39 98 |
| 4-Chloro-3-methylphenol | 200 | 148 | 74 | 7 | 42 23 97 |
| Acenaphthene | 100 | 86.4 | 86 | -2 | 31 46-118 |
| 4-Nitrophenol | 200 | 172 | 86 * | -12 | 50 10- 80 |
| 2,4-Dinitrotoluene | 100 | 86.4 | 86 | -2 | 38 24- 96 |
| Pentachlorophenol | 200 | 218 | 109 * | -5 | 50 9-103 |
| Pyrene | 100 | 101 | 101 | 3 | 31 26-127 |

(1) N-Nitroso-di-n-propylamine

= Column to be used to flag recovery and RPD values with an asterisk
 * Values outside of QC limits

RPD: 0 out of 11 outside limits
 Spike Recovery: 3 out of 22 outside limits

COMMENTS: CLP, S25088, , BAFB 0726, L, W, 25088002, S, EPA,
 BN

QUALITY CONTROL

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE NUMBER | METHOD | DUPLICATES | | | SPIKE | | | LCS | | | LCS SOURCE |
|----------|---------------|-------|------|------------------|--------|------------|------|------|-------|------|------|------|------|------|------------|
| | | | | | | SR | D | RPD | TV | SSR | % R | TV | % R | % R | |
| TDS | 08-31-89 | mg/l | 3 | 24158-3 | | 263 | 258 | 1.9 | | | | 508 | 492 | 96.8 | LAB |
| TDS | 09-01-89 | mg/l | 3 | 24185-8 | | 251 | 240 | 4.5 | | | | 508 | 522 | 103 | LAB |
| TDS | 09-01-89 | mg/l | 3 | 24191-3 | | 336 | 335 | 0.3 | | | | 508 | 506 | 99.6 | LAB |
| TDS | 09-06-89 | mg/l | 3 | 24202-6 | | 203 | 1999 | 2.0 | | | | 508 | 499 | 98.2 | LAB |
| TDS | 09-13-89 | mg/l | 3 | 24242-7 | | 254 | 248 | 2.4 | | | | 508 | 560 | 110 | LAB |
| TDS | 09-14-89 | mg/l | 3 | 24246-3 | | 228 | 225 | 1.3 | | | | | | | |
| TDS | 09-14-89 | mg/l | 3 | 24265-3 | | 244 | 250 | 2.4 | | | | 508 | 484 | 95.3 | LAB |
| TDS | 09-18-89 | mg/l | 3 | 24272-3 | | 247 | 244 | 1.2 | | | | 575 | 569 | 99.0 | LAB |
| TDS | 09-19-89 | mg/l | 3 | 24304-3 | | 284 | 283 | 0.4 | | | | 575 | 567 | 98.6 | LAB |
| TDS | 09-20-89 | mg/l | 3 | 24337-3 | | 377 | 363 | 4.5 | | | | 575 | 5882 | 102 | LAB |
| TDS | 09-25-89 | mg/l | 3 | 24387-4 | | 385 | 368 | 4.5 | | | | 575 | 572 | 99.5 | LAB |
| TDS | 09-27-89 | mg/l | 3 | 24406-4 | | 359 | 364 | 1.4 | | | | | | | |
| TDS | 10-02-89 | mg/l | 3 | 24451-1 | | 460 | 457 | 0.7 | | | | 575 | 563 | 97.9 | LAB |
| Chloride | 09-15-89 | mg/l | 1 | 24185-8 | <1.0 | 16.8 | 17.5 | 4.1 | 20.0 | 38.1 | 106 | 1000 | 1008 | 101 | LAB |
| Chloride | 09-20-89 | mg/l | 1 | 24202-6 | <1.0 | 10.8 | 11.2 | 3.6 | 20.0 | 7.5 | 98.5 | 1000 | 976 | 97.6 | LAB |
| Chloride | 09-22-89 | mg/l | 1 | 24246-3 | <1.0 | 24.8 | 25.2 | 1.6 | 20.0 | 44.8 | 100 | 1000 | 982 | 98.2 | LAB |
| Chloride | 09-22-89 | mg/l | 1 | 24265-3 | <1.0 | 43.7 | 43.7 | 0.0 | 20.0 | 64.1 | 102 | 1000 | 983 | 98.3 | LAB |
| Chloride | 10-10-89 | mg/l | 1 | 24451-1 | <1.0 | 45.7 | 45.6 | 0.2 | 40.0 | 86.4 | 102 | 1000 | 999 | 99.9 | LAB |
| Fluoride | 09-15-89 | mg/l | 0.05 | 24202-6 | <0.05 | 0.27 | 0.29 | 7.1 | 0.20 | 0.51 | 120 | 0.42 | 0.44 | 105 | EPA-CI |
| Fluoride | 09-15-89 | mg/l | 0.05 | 24185-8 | <0.05 | 0.24 | 0.27 | 11.8 | 0.20 | 0.45 | 105 | 0.40 | 0.43 | 108 | L/2 |
| Fluoride | 09-20-89 | mg/l | 0.05 | 24242-6 | <0.05 | 0.18 | 0.19 | 5.4 | 0.20 | 0.34 | 80.0 | 0.42 | 0.36 | 85.7 | EPA-CI |
| Fluoride | 09-20-89 | mg/l | 0.05 | 24337-1 | <0.05 | 0.14 | 0.13 | 7.4 | 0.20 | 0.29 | 75.0 | 0.42 | 0.38 | 90.5 | EPA-CI |
| Fluoride | 10-13-89 | mg/l | 0.05 | 24451-1 | <0.05 | 0.23 | 0.23 | 0.0 | 0.10 | 0.33 | 100 | 0.40 | 0.41 | 102 | LAB |

QA Criteria

DL = Detection Limit

SR = Sample Result

D = Duplicate

RPD = Relative Percent Difference

TV = True Value

SSR = Spiked Sample Result

% R = Percent Recovery

LCS = Lab Control Sample

NC = Not Calculable

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.

2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.

3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.

4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.

5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

QA/QC SUMMARY

| TEST | DATE ANALYZED | UNITS | DL | REFERENCE NUMBER | METHOD | DUPLICATES | | | SPIKE | | | LCS | | | LCS SOURCE |
|-----------------------|---------------|-------|------|------------------|--------|------------|-------|-----|-------|-------|------|-------|--------|------|------------|
| | | | | | | SR | D | RPD | TV | SSR | X R | TV | RESULT | X R | |
| Sulfate | 09-16-89 | mg/l | 1 | 24185-3 | <1 | <1 | <1 | MC | 5.00 | 5.7 | 114 | 20.0 | 21.9 | 110 | LAB |
| Sulfate | 09-16-89 | mg/l | 1 | 24202-4 | <1 | <1 | <1 | MC | 5.00 | 5.2 | 104 | 20.0 | 22.2 | 111 | LAB |
| Sulfate | 09-21-89 | mg/l | 1 | 24230-16 * | <1 | 11.7 | 11.7 | 0.0 | 10.0 | 22.8 | 111 | 20.0 | 21.5 | 108 | LAB |
| Sulfate | 09-21-89 | mg/l | 1 | 24242-7 | <1 | 6.0 | 6.0 | 0.0 | 10.0 | 15.4 | 94.0 | 20.0 | 21.2 | 106 | LAB |
| Sulfate | 10-11-89 | mg/l | 1 | 24451-1 | <1 | 7.9 | 7.7 | 2.6 | 5.00 | 12.3 | 87.6 | 20.0 | 19.8 | 99.0 | LAB |
| Nitrate-Nitrite @ NO3 | 09-16-89 | mg/l | 0.13 | 24202-6 | <0.13 | 10.14 | 9.79 | 3.6 | 11.1 | 23.0 | 116 | 8.86 | 10.1 | 114 | EPA-CI |
| Nitrate-Nitrite @ NO3 | 09-27-89 | mg/l | 0.13 | 24242-7 | <0.13 | 11.4 | 11.7 | 2.6 | 4.4 | 16.6 | 117 | 8.86 | 8.82 | 99.5 | EPA-CI |
| Nitrate-Nitrite @ NO3 | 10-09-89 | mg/l | 0.13 | 24451-1 | <0.13 | 0.22 | 0.22 | 0.0 | 0.89 | 1.20 | 110 | 3.54 | 3.90 | 110 | LAB |
| COO | 09-08-89 | mg/l | 7.0 | 24158-3 | <7 | <7 | <7 | MC | 100 | 107 | 107 | 75.0 | 76.5 | 102 | LAB |
| COO | 09-11-89 | mg/l | 7.0 | 24087-2 * | <7 | 19.0 | 20.4 | 7.0 | 100 | 121 | 102 | 75.0 | 75.6 | 101 | LAB |
| COO | 09-28-89 | mg/l | 7.0 | 24265-1 | <7 | <7 | <7 | MC | 100 | 108 | 108 | 75.0 | 75.9 | 101 | LAB |
| Total Cyanide | 09-26-89 | mg/l | 0.01 | 24304-1 | <0.01 | <0.01 | <0.01 | MC | 0.100 | 0.111 | 111 | 0.094 | 0.108 | 115 | EPA-LV |

6861-289

QA Criteria

1. Method Blank = + or - Detection Limit (DL) or acceptable if concentration is < or = to 10 times the sample concentration.
2. Duplicates RPD = + or - 20% for concentrations > 5 times DL.
3. Duplicate (RPD) = Acceptable difference between SR and D is + or - DL where SR is < or = to 5 times DL.
4. Spike % Recovery = 75-125% for sample concentrations < 4 times the spike concentrations.
5. QC Check = + or - 20% of True Value or within EPA range.

* Not a BAFB sample.

FORM 004

DL = Detection Limit
 SR = Sample Result
 D = Duplicate
 RPD = Relative Percent Difference
 TV = True Value
 SSR = Spiked Sample Result
 X R = Percent Recovery
 LCS = Lab Control Sample
 MC = Not Calculable



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22294

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 2/22/89

| COMPOUND | SAMPLE
RESULT
(PPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | 134 | 180 | 75% |
| | | | |
| | | | |

COMMENTS:

7.1 2-24-89

F-990



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22370 ANALYSIS: TFH Diesel MATRIX: Soil

DATE TESTED: 2/22/89

| COMPOUND | SAMPLE
RESULT
(PPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | 123 | 180 | 68% |
| | | | |
| | | | |

COMMENTS:

BS 2-24-89



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22766

ANALYSIS: TFH Diesel

MATRIX: Soil

DATE TESTED: 2/21/89

| COMPOUND | SAMPLE
RESULT
(PFM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | 130 | 180 | 72% |
| | | | |
| | | | |

COMMENTS:



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22881

ANALYSIS:

MATRIX: SOIL

DATE TESTED:

TFH DIESEL

4-5-89gm

| COMPOUND | SAMPLE
RESULT
(PPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | 116 | 180 | 64 |
| | | | |
| | | | |

COMMENTS:



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22870
22871
22878

22879
22874

ANALYSIS: TFH Diesel

MATRIX: Water

DATE TESTED: 4/12/89

| COMPOUND | SAMPLE
RESULT
(PPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | 3.67 | 5.0 | 73% |
| | | | |
| | | | |

m

COMMENTS:



QUALITY CONTROL SAMPLES

LABORATORY NO.: 22890 ANALYSIS: TFH Diesel MATRIX: Water

DATE TESTED: 4/12

22906
22874
22891
22914
22915
22930

| COMPOUND | | SAMPLE
RESULT
(PFM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|--------|---------------------------|---------------|---------------------|
| TFH | QC 4/4 | <0.05 | 5.0 | 65% |
| | QC 4/7 | <0.05 | 5.0 | 57% |
| | | | | |

COMMENTS:

m



QUALITY CONTROL SAMPLES

LABORATORY NO.:

ANALYSIS: TFF Diesel

MATRIX: Water + Soil

DATE TESTED: 6/2/89

| COMPOUND | SAMPLE
RESULT
(FPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|---------------------------|---------------|---------------------|
| TFH | sol QC 5/31 | 39.2 | 50 |
| | | | 78% |
| | | | |
| | | | |

used 500 μ l of a 5.0 mg/ml spike

$$0.5 \text{ ml} \times \frac{5.0 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{1 \text{ l}} = 2.5 \text{ mg/l water}$$

$$0.5 \text{ ml} \times \frac{5.0 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{.05 \text{ kg}} = 50 \text{ ppm Soil}$$

COMMENTS:

9M 6-5-89



QUALITY CONTROL SAMPLES

LABORATORY NO.: 23473 6/15
23417 6/8 ANALYSIS: TFH Diesel MATRIX: Water + Soil
DATE TESTED: 6/20/89

| COMPOUND | | SAMPLE
RESULT
(PPM) | TRUE
VALUE | PERCENT
RECOVERY |
|----------|-------------|---------------------------|---------------|---------------------|
| TFH | QC 6/8 | 1.77 | 2.5 | 71% |
| | Sol QC 6/15 | 34.8 | 50 | 70% |

Water:

$$0.5 \text{ ml} \times \frac{5.0 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{1 \text{ l}} = 2.5 \text{ mg/l}$$

Soil:

$$0.5 \text{ ml} \times \frac{5.0 \text{ mg}}{\text{ml}} = \frac{2.5 \text{ mg}}{0.05 \text{ kg}} = 50 \text{ ppm}$$

COMMENTS:

BB

6-21-89

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 2-24-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 15.4 | 20 | 14.0--26.0 |
| Toluene | 17.2 | 20 | 14.0--26.0 |
| Ethyl benzene | 17.7 | 20 | 14.0--26.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.7 | 20 | 14.0--26.0 |
| 1,4-Dichlorobenzene | 17.3 | 20 | 14.0--26.0 |
| 1,3-Dichlorobenzene | 18.2 | 20 | 14.0--26.0 |
| 1,2-Dichlorobenzene | 18.3 | 20 | 14.0--26.0 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 2-24-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 61.8 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.5 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.6 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 9.1 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.5 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 33.1 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 10.3 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 12.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California


Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 2-25-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 60.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.8 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.2 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 8.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.3 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 33.0 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 9.9 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 13.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 2/8020

Date Tested: 2-25-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance-
Range (PPB) |
|---------------------|------------------------|---------------------|----------------------------|
| Benzene | 15.7 | 20 | 14.0--26.0 |
| Toluene | 17.8 | 20 | 14.0--26.0 |
| Ethyl benzene | 18.0 | 20 | 14.0--26.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.6 | 20 | 14.0--26.0 |
| 1,4-Dichlorobenzene | 19.0 | 20 | 14.0--26.0 |
| 1,3-Dichlorobenzene | 19.7 | 20 | 14.0--26.0 |
| 1,2-Dichlorobenzene | 19.2 | 20 | 14.0--26.0 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 802/8020

Date Tested: 3-7-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 16.1 | 20 | 14.0--26.0 |
| Toluene | 18.2 | 20 | 14.0--26.0 |
| Ethyl benzene | 18.1 | 20 | 14.0--26.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.0 | 20 | 14.0--26.0 |
| 1,4-Dichlorobenzene | 17.6 | 20 | 14.0--26.0 |
| 1,3-Dichlorobenzene | 18.9 | 20 | 14.0--26.0 |
| 1,2-Dichlorobenzene | 18.9 | 20 | 14.0--26.0 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 3-7-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 57.1 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.4 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.7 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.2 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 8.6 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.0 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 36.1 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 12.6 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 13.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: W

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 3-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 13.6 | 20 | 10.0--27.9 |
| Toluene | 17.4 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.5 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 17.2 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 19.3 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.0 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.1 | 20 | 10.6--27.6 |

comments:

Approved by: *W*

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 3-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 14.8 | 20 | 10.0--27.9 |
| Toluene | 17.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.4 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.8 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 19.4 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.0 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.3 | 20 | 10.6--27.6 |

Comments:

Approved by: W

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California


Analysis: ☒ 601 or ☐ 8010

Matrix: Water

Date Tested: 3-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 59.4 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.4 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.5 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 8.5 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.2 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 33.5 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 10.9 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 14.2 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 681 or [] 8818

Matrix: Water

Date Tested: 3-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 53.6 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 18.7 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.0 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 18.9 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 7.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 29.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.5 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 12.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 



QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.3

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA-601/8010

Matrix: Water

Date Tested: 3-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | NA | |
| Bromomethane | | NA | |
| Dichlorodifluoromethane | | NA | |
| Vinyl chloride | | NA | |
| Chloroethane | | NA | |
| Methylene chloride | | NA | |
| Trichlorofluoromethane | | NA | |
| 1,1-Dichloroethene | | NA | |
| 1,1-Dichloroethane | | NA | |
| trans-1,2-Dichloroethene | | NA | |
| Chloroform | 15.4 | 15.0 | 8.4--18.7 |
| 1,2-Dichloroethane | 2.4 | 3.1 | MDL--4.7 |
| 1,1,1-Trichloroethane | 1.3 | 1.9 | 0.2--2.9 |
| Carbon Tetrachloride | 5.5 | 5.6 | 1.9--7.0 |
| Bromodichloromethane | 0.7 | 1.5 | MDL--2.9 |
| 1,2-Dichloropropene | | NA | |
| cis-1,3-Dichloropropene | | NA | |
| Trichloroethene | 1.1 | 1.5 | 0.4--3.2 |
| Dibromochloromethane | 1.4 | 3.2 | MDL--11.8 |
| 1,1,2-Trichloroethane | | NA | |
| trans-1,3-Dichloropropene | | NA | |
| Bromoform | 0.9 | 2.7 | MDL--7.2 |
| 1,1,2,2-Tetrachloroethane | | NA | |
| Tetrachloroethene | 4.5 | 3.5 | MDL--7.7 |
| Chlorobenzene | | NA | |
| 1,3-Dichlorobenzene | | NA | |
| 1,2-Dichlorobenzene | | NA | |
| 1,4-Dichlorobenzene | | NA | |

Comments: NA= Compounds not analyzed for in this quality control reference standard

Approved by:

CH2MHILL

Redding
Environmental Laboratory

F-1008

1 Railroad Avenue, P.O. Box 2088
Redding, California 96001

916 243 5831



QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.3

CH2M Hill Environmental Laboratory
Redding, California

Analysis: EPA-601/8010

Matrix: Water

Date Tested: 3-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | NA | |
| Bromomethane | | NA | |
| Dichlorodifluoromethane | | NA | |
| Vinyl chloride | | NA | |
| Chloroethane | | NA | |
| Methylene chloride | | NA | |
| Trichlorofluoromethane | | NA | |
| 1,1-Dichloroethene | | NA | |
| 1,1-Dichloroethane | | NA | |
| trans-1,2-Dichloroethene | | NA | |
| Chloroform | 15.4 | 15.0 | 8.4--18.7 |
| 1,2-Dichloroethane | 2.4 | 3.1 | MDL--4.7 |
| 1,1,1-Trichloroethane | 1.3 | 1.9 | 0.2--2.9 |
| Carbon Tetrachloride | 5.5 | 5.6 | 1.9--7.0 |
| Bromodichloromethane | 0.7 | 1.5 | MDL--2.9 |
| 1,2-Dichloropropane | | NA | |
| cis-1,3-Dichloropropane | | NA | |
| Trichloroethene | 1.1 | 1.5 | 0.4--3.2 |
| Dibromochloromethane | 1.4 | 3.2 | MDL--11.8 |
| 1,1,2-Trichloroethane | | NA | |
| trans-1,3-Dichloropropane | | NA | |
| Bromoform | 0.9 | 2.7 | MDL--7.2 |
| 1,1,1,2-Tetrachloroethane | | NA | |
| Tetrachloroethene | 4.5 | 3.5 | MDL--7.7 |
| Chlorobenzene | | NA | |
| 1,3-Dichlorobenzene | | NA | |
| 1,2-Dichlorobenzene | | NA | |
| 1,4-Dichlorobenzene | | NA | |

Comments: NA= Compounds not analyzed for in this quality control reference standard

Approved by:



QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 3-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 18.0 | 20 | 10.0--27.9 |
| Toluene | 20.6 | 20 | 11.2--27.7 |
| Ethyl benzene | 21.1 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.7 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 21.1 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.2 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.8 | 20 | 10.6--27.6 |

comments:

Approved by:

CH2MHILL

Redding
Environmental Laboratory

F-1010

Railroad Avenue, P O Box 2088
Redding, California 96001

916 243 5831

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 3-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 65.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 12.2 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 14.3 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 9.1 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.6 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 37.3 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 10.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 14.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 802/8020

Date Tested: 3-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 16.5 | 20 | 10.0--27.9 |
| Toluene | 19.8 | 20 | 11.2--27.7 |
| Ethyl benzene | 19.3 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.3 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.3 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.8 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.9 | 20 | 10.6--27.6 |

Comments:

Approved by:



QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: DXJ 601 or L 1 8010

Matrix: Water

Date Tested: 3-30-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 52.1 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 8.7 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 2.8 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 8.9 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 5.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 4.1 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 20.1 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 5.1 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.3 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

CH2M HILL

Redding
Environmental Laboratory

Railroad Avenue P O Box 2088
Redding California 96001

916 243 5831

F-1013



QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 3-30-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 14.7 | 20 | 10.0--27.9 |
| Toluene | 18.0 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.1 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.6 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.4 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.8 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.5 | 20 | 10.6--27.6 |

Comments:

Approved by:

CEMHILL

San Diego
Environmental Laboratory

2213 Railroad Avenue P.O. Box 2089
San Diego, California 92101

916 243 5531

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California


Analysis: [X] 681 or [] 8810

Matrix: Water

Date tested: 1-31-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 64.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 18.3 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.9 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 12.7 | 14.8 | 6.8--18.5 |
| Bromodichloroethane | 6.9 | 18.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.5 | 8.6 | 3.7--12.2 |
| Dibromodichloroethane | 26.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 18.1 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.8 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date tested: 3-31-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 58.2 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 8.4 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 3.5 | 7.7 | 3.3--10.2 |
| Carbon tetrachloride | 9.8 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 5.6 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 4.4 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 22.1 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date tested: 3-31-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 17.6 | 20 | 10.0--27.9 |
| Toluene | 17.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 15.8 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.5 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 19.6 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.2 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.1 | 20 | 10.6--27.6 |

comments:

Approved by: h

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8620

Date tested: 3-31-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.3 | 20 | 10.4--27.9 |
| Toluene | 21.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 20.4 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 22.1 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.5 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.4 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 20.8 | 20 | 10.6--27.6 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-1114

Analysis: KPA 602/8020

Date Tested: 4-3-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 28.3 | 20 | 10.0--27.9 |
| Toluene | 20.4 | 20 | 11.2--27.7 |
| Ethyl benzene | 20.1 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 21.6 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 18.9 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 18.5 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 18.9 | 20 | 10.6--27.6 |

comments: Dichlorobenzenes reported from Hall detector

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: ☒ 601 or ☐ 8010

Matrix: Water

Date Tested: 4-3-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 66.8 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 12.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 3.4 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 14.1 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 7.8 | 18.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.4 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 19.1 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.8 | 14.9 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 14.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS


PR-1AM LOT NO: 21-111A

Analysis: KPA 602/8020

Date Tested: 4-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 24.0 | 20 | 10.0--27.9 |
| Toluene | 18.5 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.5 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.5 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 16.8 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 16.5 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 16.7 | 20 | 10.6--27.6 |

comments: Dichlorobenzenes reported from Hall detector

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS


PR-1AM LOT NO: 21-111A

Analysis: KPA 602/8020

Date Tested: 4-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 26.2 | 20 | 10.0--27.9 |
| Toluene | 19.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.7 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 17.7 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 17.3 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 17.6 | 20 | 10.6--27.6 |

comments: Dichlorobenzenes reported from Hall detector

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 681 or [] 8810

Matrix: Water

Date Tested: 4-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromoethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 61.4 | 38.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.3 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 2.8 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 12.4 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 6.6 | 18.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.4 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 19.4 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.1 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 63.6 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 2.1 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 12.1 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 6.4 | 18.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.8 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 19.5 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 7.8 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.8 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-5-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.5 | 20 | 10.0--27.9 |
| Toluene | 19.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 19.9 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.7 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.1 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.4 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 20.8 | 20 | 10.6--27.6 |

comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California


Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-5-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 69.3 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.2 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 3.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 15.8 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 7.7 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 22.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 10.5 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE, LARGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-12-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.6 | 20 | 18.8--27.9 |
| Toluene | 20.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.4 | 20 | 18.8--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 28.3 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 12.7 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 16.8 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 16.7 | 20 | 18.6--27.6 |

Comments:

Approved by: *W*

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-12-1987

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 88.1 | 58.4 | 33.4-74.4 |
| 1,2-Dichloroethane | 15.3 | 12.6 | 6.6-17.5 |
| 1,1,1-Trichloroethane | 6.4 | 7.7 | 3.3-18.2 |
| Carbon Tetrachloride | 16.4 | 14.8 | 6.8-18.5 |
| Bromodichloromethane | 9.9 | 18.3 | 4.3-16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.8 | 8.6 | 3.7-12.2 |
| Dibromochloromethane | 36.8 | 41.5 | 18.3-63.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 11.4 | 14.8 | 2.2-22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.3 | 9.5 | 1.3-16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 423 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 51.6 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 8.5 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 12.4 | 7.7 | 3.3--18.2 |
| Carbon tetrachloride | 18.8 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 6.9 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.8 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 23.7 | 41.5 | 19.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromofore | 8.3 | 14.6 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.4 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.1

CH2M Hill Environmental Laboratory
Redding, California


Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 58.4 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 8.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.5 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 11.1 | 14.8 | 6.8--18.5 |
| Bromodichloroethane | 6.7 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.7 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 24.3 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 7.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 58.8 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.5 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 11.8 | 14.8 | 6.8--18.5 |
| Bromodichloroethane | 7.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.9 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 25.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 9.8 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.1 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:  _____

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 17.4 | 20 | 10.0--27.9 |
| Toluene | 17.7 | 20 | 11.2--27.7 |
| Ethyl benzene | 20.0 | 20 | 10.0--28.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.1 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.4 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 19.3 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 19.5 | 20 | 10.4--27.6 |

Comments:

Approved by: m

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS


PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 18.0 | 20 | 10.0--27.9 |
| Toluene | 18.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 19.0 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.7 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 21.3 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.1 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 21.3 | 20 | 10.6--27.6 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 18.8 | 20 | 10.0--27.9 |
| Toluene | 18.0 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.7 | 20 | 10.0--28.8 |
| Iylene | //// | NA | |
| Chlorobenzene | 19.4 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 22.1 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.6 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 21.6 | 20 | 10.6--27.6 |

comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 4-16-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 16.3 | 20 | 10.0--27.9 |
| Toluene | 18.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.5 | 20 | 10.0--28.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.4 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 19.2 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.6 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 20.3 | 20 | 10.6--27.6 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 681 or [] 8018

Matrix: Water

Date Tested: 4-16-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 57.7 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.4 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.6 | 7.7 | 3.3--18.2 |
| Carbon Tetrachloride | 13.3 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 8.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 27.8 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 6.9 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.3 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date tested: 6-5-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 72.1 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 13.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 14.6 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 9.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.4 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 32.3 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 11.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8228

Date Tested: 6-5-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 19.3 | 20 | 18.8--27.9 |
| Toluene | 19.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 13.7 | 20 | 18.8--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 16.8 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 14.6 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 15.3 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 14.6 | 20 | 18.6--27.6 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.3

CHCM Hill Environmental Laboratory
Redding, California

Analysis: EPA-601/8010

Matrix: Water

Date Tested: 6-13-1999

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | NA | |
| Bromoethane | | NA | |
| Dichlorodifluoroethane | | NA | |
| Vinyl chloride | | NA | |
| Chloroethane | | NA | |
| Methylene chloride | | NA | |
| Trichlorofluoroethane | | NA | |
| 1,1-Dichloroethene | | NA | |
| 1,1-Dichloroethane | | NA | |
| trans-1,2-Dichloroethene | | NA | |
| Chloroform | 16.4 | 15.0 | 8.4--18.7 |
| 1,2-Dichloroethane | 2.8 | 3.1 | MDL--4.7 |
| 1,1,1-Trichloroethane | 1.2 | 1.9 | 0.2--2.9 |
| Carbon tetrachloride | 5.3 | 5.6 | 1.9--7.0 |
| Bromodichloromethane | 0.7 | 1.5 | MDL--2.9 |
| 1,2-Dichloropropane | | NA | |
| cis-1,2-Dichloropropene | | NA | |
| Trichloroethene | 1.2 | 1.5 | 0.4--3.2 |
| Chlorodichloroethane | 1.4 | 3.2 | MDL--11.8 |
| 1,1,2-Trichloroethane | | NA | |
| trans-1,2-Dichloropropene | | NA | |
| Bromoform | 1.4 | 2.7 | MDL--7.2 |
| 1,1,1,2-Tetrachloroethane | | NA | |
| Tetrachloroethene | 2.9 | 3.5 | MDL--7.7 |
| Chlorobenzene | | NA | |
| 1,2-Dichlorobenzene | | NA | |
| 1,3-Dichlorobenzene | | NA | |
| 1,4-Dichlorobenzene | | NA | |

Comments: NA= Compounds not analyzed for in this quality control reference standard

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-13-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 72.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 12.9 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.7 | 7.7 | 3.3--10.2 |
| Carbon tetrachloride | 15.8 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 9.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.9 | 9.6 | 3.7--12.2 |
| Dibromochloromethane | 32.5 | 41.5 | 19.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 12.3 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.9 | 9.5 | 1.3--14.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 5-17-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 55.3 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.9 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.8 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 12.6 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 7.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.2 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 26.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,2-Dichloropropene | | | |
| Bromocloro | 10.9 | 14.8 | 6.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 10.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 463 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 5-11-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 56.3 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 17.0 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.0 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 7.3 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,2-Dichloropropene | | | |
| Trichloroethene | 6.4 | 8.6 | 3.7--12.1 |
| 1,1,2-Trichloroethane | 37.0 | 41.5 | 18.3--65.1 |
| trans-1,2-Dichloropropene | | | |
| Bromochloroethane | 10.1 | 14.8 | 2.2--22.1 |
| 1,1,1,2-Tetrachloroethane | | | |
| Tetrachloroethene | 10.6 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-13-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 18.8 | 20 | 10.0--27.9 |
| Toluene | 20.0 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.0 | 20 | 10.0--28.8 |
| Xylene . . | //// | NA | |
| Chlorobenzene | 19.8 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 37.0 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 18.0 | 20 | 14.5--25.5 |

comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-13-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 12.6 | 20 | 10.0--27.9 |
| Toluene | 15.7 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.6 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 34.1 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 18.4 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-13-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 12.6 | 20 | 10.0--27.9 |
| Toluene | 15.7 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 16.2 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 34.1 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 18.4 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 56.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.1 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.2 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 12.8 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 7.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.5 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 27.0 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 10.0 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 10.3 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.: 11-111A

Analysis: EPA 602/8020

Date Tested: 6-14-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 17.8 | 20 | 10.0--27.9 |
| Toluene | 20.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 19.7 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.7 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 58.1 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 24.1 | 20 | 14.5--25.5 |

comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: ☒ 601 or ☐ 8010

Matrix: Water

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 75.5 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 13.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 7.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 16.3 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 9.7 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.9 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 33.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 13.2 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 57.7 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.1 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.7 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.7 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 7.9 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.8 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 27.3 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 11.0 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 10.6 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 81.6 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 15.3 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 8.5 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 19.1 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 10.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 9.1 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 36.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 14.8 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 12.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 21.8 | 20 | 10.0--27.9 |
| Toluene | 23.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 21.2 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 22.1 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 39.7 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 20.0 | 20 | 14.5--25.5 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 17.8 | 20 | 10.0--27.9 |
| Toluene | 20.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 20.1 | 20 | 10.0--28.8 |
| Xylene | 1111 | NA | |
| Chlorobenzene | 20.7 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 42.9 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 21.5 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-15-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 23.0 | 20 | 10.0--27.9 |
| Toluene | 24.1 | 20 | 11.2--27.7 |
| Ethyl benzene | 21.5 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 22.4 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 40.3 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 20.4 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date tested: 6-19-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 54.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.7 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 3.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 9.6 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 5.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.3 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 16.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 3.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.3 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: *[Signature]*

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-111A

Analysis: EPA 602/8020

Date Tested: 6-19-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 15.2 | 20 | 10.8--27.9 |
| Toluene | 15.6 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.4 | 20 | 10.8--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 17.7 | 20 | 12.1--25.4 |
| 1,4-chlorobenzene | 24.5 | 20 | 11.1--25.5 |
| 1,3-chlorobenzene | 19.2 | 20 | 14.5--25.5 |
| 1,2-dichlorobenzene | 20.5 | 20 | 10.6--27.6 |

comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-21-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 46.4 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.2 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.4 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 11.3 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 6.4 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.1 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 22.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 8.1 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.5 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-21-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.6 | 20 | 10.0--27.9 |
| Toluene | 23.0 | 20 | 11.2--27.7 |
| Ethyl benzene | 13.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.6 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 56.1 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 30.0 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: ☒ 601 or ☐ 8010

Matrix: Water

Date Tested: 6-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 47.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.3 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.6 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 10.2 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 7.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane | 25.9 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,2-Dichloropropene | | | |
| Bromoform | 10.2 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 8.5 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 6010

Matrix: Water

Date Tested: 6-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 57.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.7 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.4 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 11.4 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 8.4 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.3 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 31.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 13.5 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 9.6 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-23-1984

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 74.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 14.3 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 15.7 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 9.5 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.6 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 36.2 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 13.2 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.8 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.3 | 20 | 10.0--27.9 |
| Toluene | 21.8 | 20 | 11.2--27.7 |
| Ethyl benzene | 12.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.0 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 58.1 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 29.7 | 20 | 14.5--25.5 |

comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 22.8 | 20 | 10.0--27.9 |
| Toluene | 21.5 | 20 | 11.2--27.7 |
| Ethyl benzene | 16.9 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.2 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 42.2 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 19.4 | 20 | 14.5--25.5 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-23-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 23.2 | 20 | 10.0--27.9 |
| Toluene | 20.8 | 20 | 11.2--27.7 |
| Ethyl benzene | 21.2 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.3 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 34.5 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 16.7 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-24-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 62.2 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.4 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.7 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.6 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 8.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.8 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 31.3 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 11.2 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.0 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-24-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 23.8 | 20 | 10.0--27.9 |
| Toluene | 22.6 | 20 | 11.2--27.7 |
| Ethyl benzene | 19.5 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 21.2 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 43.3 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 20.5 | 20 | 14.5--25.5 |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-26-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 62.2 | 59.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.0 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.9 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 14.0 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 8.7 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.7 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 31.9 | 41.5 | 19.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropene | | | |
| Bromoform | 11.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.3 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 6-25-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethane | | | |
| Chloroform | 63.7 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.0 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 6.1 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 14.4 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 9.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropane | | | |
| Trichloroethene | 6.7 | 8.6 | 3.7--12.2 |
| Dibromochloroethane | 31.5 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane | | | |
| trans-1,3-Dichloropropane | | | |
| Bromoform | 11.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane | | | |
| Tetrachloroethene | 11.1 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments:

Approved by: 

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-26-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|------------------------|---------------------|---------------------------|
| Benzene | 23.2 | 20 | 10.0--27.9 |
| Toluene | 22.4 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.5 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 20.7 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 44.7 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 21.0 | 20 | 14.5--25.5 |

Comments:

Approved by:

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO.:21-111A

Analysis: EPA 602/8020

Date Tested: 6-26-1989

| Compound | Sample
Resu. (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------------|-----------------------|---------------------|---------------------------|
| Benzene | 25.4 | 20 | 10.0--27.9 |
| Toluene | 23.3 | 20 | 11.2--27.7 |
| Ethyl benzene | 17.9 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 21.0 | 20 | 12.7--25.4 |
| 1,4 & 1,2-Dichlorobenzene | 45.9 | 40 | 22.2--53.1 |
| 1,3-Dichlorobenzene | 21.4 | 20 | 14.5--25.5 |

Comments:

Approved by:



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 6010

Matrix: Water

Date Tested: 9-6-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 57.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 10.4 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.7 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.8 | 14.0 | 6.8--18.5 |
| Bromodichloroethane | 6.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 6.1 | 8.6 | 3.7--12.2 |
| Dibromochloroethane (*) | 31.3 | 41.5 | 19.3--65.1 |
| 1,1,2-Trichloroethane (*) | | | |
| trans-1,3-Dichloropropene (*) | | | |
| Bromoform | 7.6 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (**) | | | |
| Tetrachloroethene (**) | 14.5 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (*) Under the conditions of analysis, Dibromochloroethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(**) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: 

CH2MHILL

Redding
Environmental Laboratory

5090 Caterpillar Road
California 96003

916 244 5227

F-1070



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 9-6-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 13.4 | 20 | 10.0--27.9 |
| Toluene | 17.2 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.1 | 20 | 10.0--28.9 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.6 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.2 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 23.6 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 25.7 | 20 | 10.6--27.6 |

comments:

Approved by: B/T

CH2M HILL

Redding
Environmental Laboratory

5090 Caterpillar Road
Redding, California 96003

916 244 5227

F-1071



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 8010

Matrix: Water

Date Tested: 9-7-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 55.7 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.9 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.1 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 12.7 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 6.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (I) | 30.0 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane (I) | | | |
| trans-1,3-Dichloropropene (I) | | | |
| Bromoform | 7.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (II) | | | |
| Tetrachloroethene (II) | 13.6 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (I) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(II) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by:

CH2MHILL

Redding
Environmental Laboratory

5090 Caterpillar Road
Redding, California 96003

916 244 5227

E-1072



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 9-7-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 12.9 | 20 | 10.0--27.9 |
| Toluene | 16.7 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.3 | 20 | 10.0--28.0 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.0 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.4 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.7 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 20.7 | 20 | 10.6--27.6 |

Comments:

Approved by: Bjt

CH2MHILL

Redding
Environmental Laboratory

5090 Caterpillar Road
Redding, California 96003

916 244 5227

F-1073



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 463 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [] 501 or [] 5010

Matrix: Water

Date Tested: 9-7-1999

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 55.7 | 56.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.9 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.1 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 12.7 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 6.0 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (*) | 30.0 | 41.5 | 19.3--65.1 |
| 1,1,2-Trichloroethane (*) | | | |
| trans-1,3-Dichloropropene (*) | | | |
| Bromoform | 7.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (**) | | | |
| Tetrachloroethene (**) | 13.6 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (*) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(**) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: 

CH2M HILL

Redding
Environmental Laboratory

5090 Caterpillar Road
California 96003

916 244 5227

F-1074



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 9-7-1969

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 12.9 | 20 | 10.0--27.9 |
| Toluene | 16.7 | 20 | 11.2--27.7 |
| Ethyl benzene | 18.3 | 20 | 10.0--28.3 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.0 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 20.4 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 20.7 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 20.7 | 20 | 10.6--27.6 |

comments:

Approved by: 3/1

C-2M-111

Receiving
Environmental Laboratory

5090 Caterpillar Road
Ft. California 96003

916 244 5227

F-1075



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 501 or [] 8010

Matrix: Water

Date Tested: 9-3-1999

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 55.0 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 9.6 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 5.4 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 13.4 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 6.1 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.8 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (8) | 29.0 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane (8) | | | |
| trans-1,3-Dichloropropene (8) | | | |
| Bromoform | 7.3 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (88) | | | |
| Tetrachloroethene (88) | 14.2 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (8) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(88) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: SM

CH2M HILL

Redding
Environmental Laboratory

5090 Caterpillar Road
Redding, California 96003

916 244 5227

F-1076



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 463 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [1] 501 or [] 5010

Matrix: Water

Date Tested: 9-9-1999

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoroethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 64.9 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.1 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 8.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 14.8 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 12.1 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.8 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (8) | 30.7 | 41.5 | 18.3--55.1 |
| 1,1,2-Trichloroethane (8) | | | |
| trans-1,3-Dichloropropene (8) | | | |
| Bromoform | 10.7 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (88) | | | |
| Tetrachloroethene (88) | 12.7 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (8) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(88) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: SM

CH2M HILL

Redding
Environmental Laboratory

5090 Caterpillar Road
California 96003

9-6 244 522



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/6020

Date Tested: 9-6-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 14.6 | 20 | 10.0--27.9 |
| Toluene | 18.9 | 20 | 11.2--27.7 |
| Ethyl benzene | 20.6 | 20 | 10.0--28.8 |
| Xylene | //// | NA | |
| Chlorobenzene | 21.4 | 20 | 12.7--25.4 |
| 1,4-Dichlorobenzene | 21.8 | 20 | 11.6--25.5 |
| 1,3-Dichlorobenzene | 23.5 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 22.2 | 20 | 10.6--27.6 |

Comments:

Approved by: 6/PT

CHAMILL

Receiving
Environmental Laboratory

5090 Caterpillar Road
California 96003

916 244 5227

F-1078



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: (X) 501 or () 5010

Matrix: Water

Date tested: 12-3-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Ethylene chloride | | | |
| Trichlorofluoromethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 58.1 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 16.8 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 7.2 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 15.5 | 14.8 | 6.8--18.5 |
| Bromodichloromethane | 9.2 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 7.2 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (X) | 32.7 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane (X) | | | |
| trans-1,3-Dichloropropene (X) | | | |
| Ethylene | 13.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (XX) | | | |
| Tetrachloroethene (XX) | 13.9 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (X) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(XX) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: Greg Jones



QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 10-3-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 17.1 | 20 | 15.4--24.6 |
| Toluene | 19.1 | 20 | 15.5--25.4 |
| Ethyl benzene | 24.5 | 20 | 12.6--27.4 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.8 | 20 | 16.1--23.9 |
| 1,4-Dichlorobenzene | 13.6 | 20 | 13.9--26.1 |
| 1,3-Dichlorobenzene | 13.5 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 14.8 | 20 | 13.6--26.4 |

Comments:

Approved by: Gray Jones



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 403 CONC.4

CH2M Hill Environmental Laboratory
Redding, California

Analysis: [X] 601 or [] 6010

Matrix: Water

Date tested: 10-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloromethane | | | |
| Bromomethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 52.6 | 59.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 11.0 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 4.3 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 10.5 | 14.0 | 6.8--18.5 |
| Bromodichloromethane | 5.8 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 5.9 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (I) | 29.8 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane (I) | | | |
| trans-1,3-Dichloropropene (I) | | | |
| Bromoform | 6.4 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (II) | | | |
| Tetrachloroethene (II) | 15.0 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (I) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(II) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: Gray Jones



QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 10-4-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 14.3 | 20 | 15.4--24.6 |
| Toluene | 17.9 | 20 | 15.5--25.4 |
| Ethyl benzene | 18.2 | 20 | 12.6--27.4 |
| Xylene | //// | NA | |
| Chlorobenzene | 18.5 | 20 | 16.1--23.9 |
| 1,4-Dichlorobenzene | 34.0 | 20 | 13.9--26.1 |
| 1,3-Dichlorobenzene | 23.4 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 24.0 | 20 | 13.6--26.4 |

Comments:

Approved by: Greg Jones



Engineers
Planners
Economists
Scientists

QUALITY CONTROL REFERENCE SAMPLE
EPA WATER POLLUTION 483 CONC.4

CHM Hill Environmental Laboratory
Redding, California

Analysis: (X) 501 or () 5010

Matrix: Water

Date tested: 12-5-1989

| Compounds | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|--------------------------------|------------------------|---------------------|---------------------------|
| Chloroethane | | | |
| Bromoethane | | | |
| Dichlorodifluoromethane | | | |
| Vinyl chloride | | | |
| Chloroethane | | | |
| Methylene chloride | | | |
| Trichlorofluoroethane | | | |
| 1,1-Dichloroethene | | | |
| 1,1-Dichloroethane | | | |
| trans-1,2-Dichloroethene | | | |
| Chloroform | 53.5 | 58.4 | 33.4--74.4 |
| 1,2-Dichloroethane | 14.5 | 12.6 | 6.6--17.5 |
| 1,1,1-Trichloroethane | 7.4 | 7.7 | 3.3--10.2 |
| Carbon Tetrachloride | 16.9 | 14.0 | 6.8--19.5 |
| Bromodichloromethane | 9.9 | 10.3 | 4.3--16.7 |
| 1,2-Dichloropropane | | | |
| cis-1,3-Dichloropropene | | | |
| Trichloroethene | 8.6 | 8.6 | 3.7--12.2 |
| Dibromochloromethane (I) | 48.5 | 41.5 | 18.3--65.1 |
| 1,1,2-Trichloroethane (I) | | | |
| trans-1,3-Dichloropropene (I) | | | |
| Bromotoluene | 12.3 | 14.8 | 2.2--22.1 |
| 1,1,2,2-Tetrachloroethane (II) | | | |
| Tetrachloroethene (II) | 16.0 | 9.5 | 1.3--16.6 |
| Chlorobenzene | | | |
| 1,3-Dichlorobenzene | | | |
| 1,2-Dichlorobenzene | | | |
| 1,4-Dichlorobenzene | | | |

Comments: (I) Under the conditions of analysis, Dibromochloromethane, 1,1,2-Trichloroethane and trans-1,3-Dichloropropene coelute. If a peak is detected, it is impossible to distinguish between the three compounds.

(II) Likewise 1,1,2,2-Tetrachloroethane and Tetrachloroethene coelute. If a peak is detected it is impossible to distinguish between the two compounds.

Approved by: Greg Jones

CHM Hill

Redding
Environmental Laboratory

916 244 5227
F-1083 California 96003



QUALITY CONTROL REFERENCE SAMPLE
CHEM SERVICE PURGEABLE AROMATICS

PR-1AM LOT NO: 21-103C

Analysis: EPA 602/8020

Date Tested: 0-5-1989

| Compound | Sample
Result (PPB) | True
Value (PPB) | Acceptance
Range (PPB) |
|---------------------|------------------------|---------------------|---------------------------|
| Benzene | 19.5 | 20 | 15.4--24.6 |
| Toluene | 21.2 | 20 | 15.5--25.4 |
| Ethyl benzene | 17.8 | 20 | 12.6--27.4 |
| Xylene | //// | NA | |
| Chlorobenzene | 19.4 | 20 | 16.1--23.9 |
| 1,4-Dichlorobenzene | 18.1 | 20 | 13.9--26.1 |
| 1,3-Dichlorobenzene | 17.1 | 20 | 14.5--25.5 |
| 1,2-Dichlorobenzene | 18.2 | 20 | 13.6--26.4 |

Comments:

Approved by: Gray Jordan

CH2M HILL

Redding Environmental Laboratory

11084 1st Road, Redding, California 96003

916 244 5227

APPENDIX G

GROUNDWATER LEVELS AT BEALE AIR FORCE BASE

Table G-1
GROUNDWATER LEVELS AT BEALE AFB, APRIL 1986

| Well
Number | Ground
Surface
Elevation
(NGVD) | Total
Depth
(ft) | Screened
Depth
Interval
(ft) | Elevation
of Top of
Monument
(NGVD) | Depth
to
Water
(ft) | Water
Elevation
(NGVD) |
|----------------|------------------------------------------|------------------------|---------------------------------------|----------------------------------------------|------------------------------|------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 108.13 | -13.95 |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 102.38 | -16.22 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 87.70 | 5.71 |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 87.00 | 7.05 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 86.40 | 10.44 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 88.06 | 7.83 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.09 | 2.77 |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.04 | 0.70 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 121.07 | -17.97 |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 126.18 | -19.01 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 127.82 | -22.08 |
| 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 125.11 | -5.81 |
| 5-A-1 | 108.47 | 136 | 116-136 | 108.71 | 116.42 | -7.71 |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 63.55 | 38.00 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 66.00 | 34.24 |
| 8-A-1 | 156.85 | 135 | 115-135 | 156.91 | 125.78 | 31.13 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 62.18 | 78.66 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 129.96 | -3.80 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 82.20 | 7.15 |
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 87.43 | 1.15 |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.00 | 76.23 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 67.80 | 68.60 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 66.06 | 71.40 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 69.12 | 72.60 |

G-1

SAC/T131/053.50

Table G-2
GROUNDWATER LEVELS AT BEALE AFB, OCTOBER 1986

| Well
Number | Ground
Surface
Elevation
(NGVD) | Total
Depth
(ft) | Screened
Depth
Interval
(ft) | Elevation
of Top of
Monument
(NGVD) | Depth
to
Water
(ft) | Water
Elevation
(NGVD) |
|----------------|------------------------------------------|------------------------|---------------------------------------|----------------------------------------------|------------------------------|------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 107.13 | -12.95 |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 101.73 | -15.57 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | -- | -- |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 85.00 | 9.05 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 84.57 | 12.27 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 85.97 | 9.62 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.47 | 2.39 |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.01 | 0.73 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 122.83 | -19.73 |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 126.57 | -19.30 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 129.25 | -23.51 |
| 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 122.89 | -3.59 |
| 5-A-1 | 108.47 | 136 | 116-136 | 108.71 | 114.25 | -5.54 |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 64.54 | 37.01 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 67.88 | 32.36 |
| 8-A-1 | 156.85 | 135 | 115-135 | 156.91 | 124.45 | 32.46 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 61.23 | 79.61 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 127.78 | -1.68 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 81.15 | 8.20 |
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 85.42 | 3.16 |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 94.65 | 76.58 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 68.00 | 68.40 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 66.91 | 70.55 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.04 | 70.68 |

G-2

SAC/T131/053.50

Table G-3
GROUNDWATER LEVELS AT BEALE AFB, DECEMBER 5-7, 1988

| Well
Number | Ground
Surface
Elevation
(NGVD) | Total
Depth
(ft) | Screened
Depth
Interval
(ft) | Elevation
of Top of
Monument
(NGVD) | Depth
to
Water
(ft) | Water
Elevation
(NGVD) |
|----------------|------------------------------------------|------------------------|---------------------------------------|----------------------------------------------|------------------------------|------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | -- | -- |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 92.83 | -6.67 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 85.73 | 7.68 |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 85.35 | 8.70 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 86.13 | 10.71 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 86.73 | 8.86 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | -- | -- |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.21 | 0.53 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | -- | -- |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 119.97 | 12.70 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | -- | -- |
| 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 114.84 | 4.46 |
| 5-A-1 | 108.48 | 136 | 116-136 | 108.71 | -- | -- |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 63.23 | 38.32 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 66.61 | 33.63 |
| 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 60.03 | 80.81 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 120.31 | 5.79 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 82.25 | 7.10 |
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 83.81 | 4.77 |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.27 | 75.96 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.54 | 66.86 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.54 | 69.92 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.83 | 69.89 |

G-3

SAC/T131/053.50

Table G-4
GROUNDWATER LEVELS AT BEALE AFB, FEBRUARY 2-7, 1989

| Date | Well Number | Ground Surface Elevation (NGVD) | Total Depth | Screened Interval | Elevation of top of Monument (NGVD) | Depth to Water | Water Elevation (NGVD) |
|----------|-------------|---------------------------------|------------------|-------------------|-------------------------------------|----------------|------------------------|
| 02/07/89 | 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 94.73 | -0.55 |
| 02/07/89 | 1-C-1 | 93.16 | 111 | 86-106 | 95.46 | 95.68 | -0.22 |
| - | 1-C-2 | 89.89 | 146 | 120-141 | 92.40 | -- | -- |
| -- | 1-C-3 | 90.18 | 110 | 84-105 | 92.27 | -- | -- |
| 02/07/89 | 1-C-4 | 89.78 | 140 | 114-135 | 92.74 | 93.45 | -0.71 |
| 02/07/89 | 1-C-5 | 89.99 | 110 | 84-105 | 93.09 | 93.75 | -0.66 |
| 02/03/89 | 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 88.09 | -1.93 |
| 02/03/89 | 2-C-1 | 83.46 | 170 | 144-165 | 86.31 | 88.74 | -2.43 |
| 02/03/89 | 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 84.58 | 8.83 |
| 02/03/89 | 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 85.02 | 9.03 |
| 02/03/89 | 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 85.63 | 11.21 |
| 02/03/89 | 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 85.97 | 9.62 |
| 02/07/89 | 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.45 | 2.41 |
| 02/07/89 | 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.39 | 0.35 |
| 02/07/89 | 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 115.12 | -12.02 |
| 02/07/89 | 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 119.26 | -11.99 |
| 02/07/89 | 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 118.01 | -12.27 |
| 02/07/89 | 3-C-1 | 105.59 | 138 | 113-133 | 108.78 | 120.05 | -11.27 |
| 02/07/89 | 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 114.57 | 4.73 |
| 02/07/89 | 5-A-1 | 108.47 | 136 | 116-136 | 108.71 | 105.45 | 3.26 |
| 02/07/89 | 5-C-1 | 110.21 | 129 | 104-124 | 110.42 | 107.56 | 2.86 |
| 02/02/89 | 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 61.88 | 39.67 |
| 02/02/89 | 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 64.66 | 35.58 |
| 02/02/89 | 6-C-1 | 108.49 | 90 | 65-85 | 110.96 | 55.48 | 55.48 |
| -- | 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 02/07/89 | 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 59.89 | 80.95 |
| 02/07/89 | 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | -- | -- |
| 02/03/89 | 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 81.86 | 7.49 |

Table G-4
(Continued)

| <u>Date</u> | <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
To
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|-------------|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 02/03/89 | 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 82.37 | 6.21 |
| 02/03/89 | 13-C-1 | 88.19 | 120 | 94-115 | 91.73 | 88.83 | 2.90 |
| 02/03/89 | 13-C-2 | 85.84 | 150 | 124-145 | 88.53 | 90.10 | -1.57 |
| 02/03/89 | 13-C-3 | 85.51 | 110 | 84-105 | 88.22 | 82.61 | 5.61 |
| 02/03/89 | 13-C-4 | 87.81 | 105 | 80-100 | 90.92 | 84.78 | 6.14 |
| 02/03/89 | 13-C-5 | 92.45 | 117 | 92-112 | 95.57 | 87.80 | 7.77 |
| 02/03/89 | 13-C-6 | -- | -- | -- | -- | -- | -- |
| 02/02/89 | 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.56 | 75.67 |
| 02/02/89 | 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.58 | 66.82 |
| 02/02/89 | 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.65 | 69.81 |
| 02/02/89 | 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.98 | 69.74 |
| -- | 16-C-1 | 159.36 | 39 | 14-34 | 162.43 | -- | -- |
| 02/02/89 | 18-C-1 | 110.82 | 134 | 109-129 | 113.89 | 114.95 | -1.06 |
| 02/02/89 | 18-C-2 | 114.07 | 130 | 105-125 | 117.33 | 114.61 | -2.72 |
| 02/02/89 | 19-C-1 | 114.54 | 104.5 | 79.5-99.5 | 114.87 | 70.06 | 44.81 |
| 02/02/89 | 19-C-2 | 112.99 | 101 | 65-85 | 116.13 | 69.54 | 46.59 |
| 02/02/89 | 19-C-3 | 112.17 | 110 | 75-95 | 114.83 | 68.85 | 45.98 |
| 02/02/89 | 19-C-4 | 109.07 | 148 | 83-143 | 112.73 | 68.61 | 44.12 |
| 02/07/89 | 21-C-1 | 102.20 | 139 | 104-125 | 105.55 | 102.72 | 2.83 |
| 02/02/89 | 23-C-1 | 127.76 | 79 | 45-65 | 128.06 | 46.55 | 81.51 |
| 02/07/89 | BG-C-1 | 169.22 | 99 | 74-94 | 171.54 | 81.71 | 89.83 |
| 02/02/89 | BG-C-2 | 159.98 | 109 | 84-104 | 163.54 | 91.88 | 71.66 |

Table G-5
GROUNDWATER LEVELS AT BEALE AFB, MARCH 27-28, 1989

| Date | Well Number | Ground Surface Elevation (NGVD) | Total Depth | Screened Interval | Elevation of top of Monument (NGVD) | Depth to Water | Water Elevation (NGVD) |
|----------|-------------|---------------------------------|------------------|-------------------|-------------------------------------|----------------|------------------------|
| 03/27/89 | 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 93.80 | 0.38 |
| 03/27/89 | 1-C-1 | 93.16 | 111 | 86-106 | 95.46 | 94.81 | 0.65 |
| 03/27/89 | 1-C-2 | 89.89 | 146 | 120-141 | 92.40 | 92.19 | 0.21 |
| 03/27/89 | 1-C-3 | 90.18 | 110 | 84-105 | 92.27 | 92.08 | 0.19 |
| 03/27/89 | 1-C-4 | 89.78 | 140 | 114-135 | 92.74 | 92.51 | 0.23 |
| 03/27/89 | 1-C-5 | 89.99 | 110 | 84-105 | 93.09 | 92.80 | 0.29 |
| 03/27/89 | 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 85.76 | 0.40 |
| 03/27/89 | 2-C-1 | 83.46 | 170 | 144-165 | 86.31 | 86.79 | -0.48 |
| 03/27/89 | 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 83.76 | 9.65 |
| 03/27/89 | 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 84.23 | 9.82 |
| 03/27/89 | 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 84.99 | 11.85 |
| 03/27/89 | 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 85.09 | 10.50 |
| 03/28/89 | 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.49 | 2.37 |
| 03/28/89 | 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.53 | 0.21 |
| 03/28/89 | 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 114.63 | -11.53 |
| 03/28/89 | 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 118.75 | -11.48 |
| 03/28/89 | 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 117.45 | -11.71 |
| 03/28/89 | 3-C-1 | 105.59 | 138 | 113-133 | 108.78 | 119.64 | -10.86 |
| 03/27/89 | 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 113.87 | 5.43 |
| 03/27/89 | 5-A-1 | 108.47 | 136 | 116-136 | 108.71 | 104.97 | 3.74 |
| 03/27/89 | 5-C-1 | 110.21 | 129 | 104-124 | 110.42 | 107.12 | 3.30 |
| 03/27/89 | 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 60.95 | 40.60 |
| 03/27/89 | 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 63.62 | 36.62 |
| 03/27/89 | 6-C-1 | 108.49 | 90 | 65-85 | 110.96 | 54.86 | 56.10 |
| 03/28/89 | 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 03/28/89 | 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 59.38 | 81.46 |
| 03/27/89 | 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 119.03 | 7.07 |
| 03/27/89 | 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 81.34 | 8.01 |

G-6

SAC/T131/053.50

Table G-5
(Continued)

| <u>Date</u> | <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
to
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|-------------|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 03/27/89 | 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 81.20 | 7.38 |
| 03/27/89 | 13-C-1 | 88.19 | 120 | 94-115 | 91.73 | 87.95 | 3.78 |
| 03/27/89 | 13-C-2 | 85.84 | 150 | 124-145 | 88.53 | 88.27 | 0.26 |
| 03/27/89 | 13-C-3 | 85.51 | 110 | 84-105 | 88.22 | 81.41 | 6.81 |
| 03/27/89 | 13-C-4 | 87.81 | 105 | 80-100 | 90.92 | 83.56 | 7.36 |
| 03/27/89 | 13-C-5 | 92.45 | 117 | 92-112 | 95.57 | 86.64 | 8.93 |
| - | 13-C-6 | - | - | - | - | - | - |
| 03/27/89 | 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.46 | 75.77 |
| 03/27/89 | 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.43 | 66.97 |
| 03/27/89 | 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.64 | 69.82 |
| 03/27/89 | 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 72.02 | 69.70 |
| 03/27/89 | 16-C-1 | 159.36 | 39 | 14-34 | 162.43 | 14.79 | 147.64 |
| 03/27/89 | 18-C-1 | 110.82 | 134 | 109-129 | 113.89 | 113.70 | 0.19 |
| 03/27/89 | 18-C-2 | 114.07 | 130 | 105-125 | 117.33 | 114.26 | 3.07 |
| 03/27/89 | 19-C-1 | 114.54 | 104.5 | 79.5-99.5 | 114.87 | 69.46 | 45.41 |
| 03/27/89 | 19-C-2 | 112.99 | 101 | 65-85 | 116.13 | 69.06 | 47.07 |
| 03/27/89 | 19-C-3 | 112.17 | 110 | 75-95 | 114.83 | 68.34 | 46.49 |
| 03/27/89 | 19-C-4 | 109.07 | 148 | 83-143 | 112.73 | 67.97 | 44.76 |
| 03/27/89 | 21-C-1 | 102.20 | 139 | 104-125 | 105.55 | 102.13 | 3.42 |
| 03/28/89 | 23-C-1 | 127.76 | 79 | 45-65 | 128.06 | 46.87 | 81.19 |
| 03/27/89 | BG-C-1 | 169.22 | 99 | 74-94 | 171.54 | 81.89 | 89.65 |
| 03/27/89 | BG-C-2 | 159.98 | 109 | 84-104 | 163.54 | 91.97 | 71.57 |

Table G-6
GROUNDWATER LEVELS AT BEALE AFB, MAY 18-20, 1989

| Well
Number | Ground
Surface
Elevation
(NGVD) | Total
Depth | Screened
Interval | Elevation
of top of
Monument
(NGVD) | Depth
to
Water | Water
Elevation
(NGVD) |
|----------------|------------------------------------------|------------------|----------------------|----------------------------------------------|----------------------|------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 93.10 | 1.08 |
| 1-C-1 | 93.16 | 111 | 86-106 | 95.46 | 94.08 | 1.38 |
| 1-C-2 | 89.89 | 146 | 120-141 | 92.40 | 91.53 | 0.87 |
| 1-C-3 | 90.18 | 110 | 84-105 | 92.27 | 91.40 | 0.87 |
| 1-C-4 | 89.78 | 140 | 114-135 | 92.74 | 91.85 | 0.89 |
| 1-C-5 | 89.99 | 110 | 84-105 | 93.09 | 92.12 | 0.97 |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 85.25 | 0.91 |
| 2-C-1 | 83.46 | 170 | 144-165 | 86.31 | 87.63 | -1.32 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 82.05 | 11.36 |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 82.53 | 11.52 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 83.31 | 13.53 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 83.29 | 12.30 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.74 | 2.12 |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.78 | -0.04 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 113.81 | -10.71 |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 117.93 | -10.66 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 116.57 | -10.83 |
| 3-C-1 | 105.59 | 138 | 113-133 | 108.78 | 115.54 | -6.76 |
| 4-A-1 | 119.25 | 136 | 116-136 | 119.30 | 113.36 | 5.94 |
| 5-A-1 | 108.48 | 136 | 116-136 | 108.71 | 104.33 | 4.38 |
| 5-C-1 | 110.21 | 129 | 104-124 | 110.42 | 106.48 | 3.94 |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 60.98 | 40.57 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 63.57 | 36.67 |
| 6-C-1 | 108.49 | 90 | 65-85 | 110.96 | 54.60 | 56.36 |
| 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 59.45 | 81.39 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 118.52 | 7.58 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 79.08 | 10.27 |

G-8

SAC/T131/053.50

Table G-6
(Continued)

| <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
to
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 79.52 | 9.06 |
| 13-C-1 | 88.19 | 120 | 94-115 | 91.73 | 86.45 | 5.28 |
| 13-C-2 | 85.84 | 150 | 124-145 | 88.53 | 87.53 | 1.00 |
| 13-C-3 | 85.51 | 110 | 84-105 | 88.22 | 79.87 | 8.35 |
| 13-C-4 | 87.81 | 105 | 80-100 | 90.92 | 82.01 | 8.91 |
| 13-C-5 | 92.45 | 117 | 92-112 | 95.57 | 84.93 | 10.64 |
| 13-C-6 | - | - | - | - | - | - |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 94.07 | 77.16 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.08 | 67.32 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.45 | 70.01 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.84 | 69.88 |
| 16-C-1 | 159.36 | 39 | 14-34 | 162.43 | 13.72 | 148.71 |
| 18-C-1 | 110.82 | 134 | 109-129 | 113.89 | 112.64 | 1.25 |
| 18-C-2 | 114.07 | 130 | 105-125 | 117.33 | 113.27 | 4.06 |
| 19-C-1 | 114.54 | 104.5 | 79.5-99.5 | 114.87 | 69.43 | 45.44 |
| 19-C-2 | 112.99 | 101 | 65-85 | 116.13 | 68.67 | 47.46 |
| 19-C-3 | 112.17 | 110 | 75-95 | 114.83 | 68.03 | 46.80 |
| 19-C-4 | 109.07 | 148 | 83-143 | 112.73 | 68.08 | 44.65 |
| 21-C-1 | 102.20 | 139 | 104-125 | 105.55 | 101.57 | 3.98 |
| 23-C-1 | 127.76 | 79 | 45-65 | 128.06 | 46.39 | 81.67 |
| 2G-C-1 | 169.22 | 99 | 74-94 | 171.54 | 81.94 | 89.60 |
| 8G-C-2 | 159.98 | 109 | 84-104 | 163.54 | 92.05 | 71.49 |

Table G-7
GROUNDWATER LEVELS AT BEALE AFB, AUGUST 22-23, 1989

| <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
to
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 92.30 | 1.88 |
| 1-C-1 | 93.16 | 111 | 86-106 | 95.46 | 93.27 | 2.19 |
| 1-C-2 | 89.89 | 146 | 120-141 | 92.40 | 90.73 | 1.67 |
| 1-C-3 | 90.18 | 110 | 84-105 | 92.27 | 90.61 | 1.66 |
| 1-C-4 | 89.78 | 140 | 114-135 | 92.74 | 91.04 | 1.70 |
| 1-C-5 | 89.99 | 110 | 84-105 | 93.09 | 91.33 | 1.76 |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 86.24 | -0.08 |
| 2-C-1 | 83.46 | 170 | 144-165 | 86.31 | 88.19 | -1.88 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 81.10 | 12.31 |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 81.57 | 12.48 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 82.27 | 14.57 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 82.36 | 13.23 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.58 | 2.28 |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.52 | 0.22 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 112.12 | -9.02 |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 116.22 | -8.95 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 114.81 | -9.07 |
| 3-C-1 | 105.59 | 138 | 113-133 | 108.78 | 114.00 | -5.22 |
| 4-A-1 | 119.26 | 136 | 116-136 | 119.30 | 112.20 | 7.10 |
| 5-A-1 | 108.47 | 136 | 116-136 | 108.71 | 103.17 | 5.54 |
| 5-C-1 | 110.21 | 129 | 104-124 | 110.42 | 105.33 | 5.09 |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 63.08 | 38.48 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 66.51 | 33.63 |
| 6-C-1 | 108.49 | 90 | 65-85 | 110.96 | 54.93 | 56.03 |
| 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 59.23 | 81.61 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 117.34 | 8.76 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 78.93 | 10.42 |

G-10

Table G-7
(Continued)

| <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
to
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 79.15 | 9.43 |
| 13-C-1 | 88.19 | 120 | 94-115 | 91.73 | 85.57 | 6.16 |
| 13-C-2 | 85.84 | 150 | 124-145 | 88.53 | 88.04 | 0.49 |
| 13-C-3 | 85.51 | 110 | 84-105 | 88.22 | 79.45 | 8.77 |
| 13-C-4 | 87.81 | 105 | 80-100 | 90.92 | 81.63 | 9.29 |
| 13-C-5 | 92.45 | 117 | 92-112 | 95.57 | 84.32 | 11.25 |
| 13-C-6 | - | - | - | - | - | - |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.76 | 75.47 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.40 | 67.00 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.58 | 69.88 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.79 | 69.93 |
| 16-C-1 | 159.36 | 39 | 14-34 | 162.43 | 14.90 | 147.53 |
| 18-C-1 | 110.82 | 134 | 109-129 | 113.89 | 111.79 | 2.10 |
| 18-C-2 | 114.07 | 130 | 105-125 | 117.33 | 112.48 | 4.85 |
| 19-C-1 | 114.54 | 104.5 | 79.5-99.5 | 114.87 | 70.75 | 44.12 |
| 19-C-2 | 112.99 | 101 | 65-85 | 116.13 | 69.69 | 46.44 |
| 19-C-3 | 112.17 | 110 | 75-95 | 114.83 | 69.13 | 45.7 |
| 19-C-4 | 109.07 | 148 | 83-143 | 112.73 | 69.47 | 43.26 |
| 21-C-1 | 102.20 | 139 | 104-125 | 105.55 | 100.41 | 5.14 |
| 23-C-1 | 127.76 | 79 | 45-65 | 128.06 | 46.15 | 81.91 |
| BG-C-1 | 169.22 | 99 | 74-94 | 171.54 | 81.60 | 89.94 |
| BG-C-2 | 159.98 | 109 | 84-104 | 163.54 | 92.03 | 71.51 |

Table G-8
GROUNDWATER LEVELS AT BEALE AFB, NOVEMBER 8-10, 1989

| Well
Number | Ground
Surface
Elevation
(NGVD) | Total
Depth | Screened
Interval | Elevation
of top of
Monument
(NGVD) | Depth
to
Water | Water
Elevation
(NGVD) |
|----------------|------------------------------------------|------------------|----------------------|----------------------------------------------|----------------------|------------------------------|
| 1-A-1 | 92.34 | 118 | 98-118 | 94.18 | 91.38 | 2.80 |
| 1-C-1 | 93.16 | 111 | 86-106 | 95.46 | 92.41 | 3.05 |
| 1-C-2 | 89.89 | 146 | 120-141 | 92.40 | 89.78 | 2.62 |
| 1-C-3 | 90.18 | 110 | 84-105 | 92.27 | 89.65 | 2.62 |
| 1-C-4 | 89.78 | 140 | 114-135 | 92.74 | 90.10 | 2.64 |
| 1-C-5 | 89.99 | 110 | 84-105 | 93.09 | 90.39 | 2.70 |
| 2-A-1 | 83.58 | 113 | 93-113 | 86.16 | 82.20 | 3.96 |
| 2-C-1 | 83.46 | 170 | 144-165 | 86.31 | 83.71 | 2.60 |
| 2-R-1 | 92.57 | 100 | 80-100 | 93.41 | 80.16 | 13.25 |
| 2-R-2 | 93.13 | 96 | 76-96 | 94.05 | 80.67 | 13.38 |
| 2-R-3 | 95.39 | 90 | 80-90 | 96.84 | 81.48 | 15.36 |
| 2-R-4 | 94.34 | 100 | 80-100 | 95.59 | 81.48 | 14.11 |
| 3-A-1 | 112.02 | 123 | 103-123 | 114.86 | 112.62 | 2.24 |
| 3-A-2 | 106.75 | 132 | 112-132 | 108.74 | 108.86 | -0.12 |
| 3-A-3 | 101.00 | 134 | 114-134 | 103.10 | 110.92 | -7.82 |
| 3-A-4 | 103.08 | 132 | 112-132 | 107.27 | 115.00 | -7.73 |
| 3-A-5 | 105.53 | 136 | 116-136 | 105.74 | 113.53 | -7.79 |
| 3-C-1 | 105.59 | 138 | 113-133 | 105.38 | 112.87 | -7.49 |
| 4-A-1 | 119.26 | 136 | 116-136 | 119.30 | 111.59 | 7.71 |
| 5-A-1 | 108.47 | 136 | 115-136 | 108.71 | 102.49 | 6.22 |
| 5-C-1 | 110.21 | 129 | 104-124 | 110.42 | 104.67 | 5.75 |
| 6-A-1 | 99.48 | 85 | 65-85 | 101.56 | 60.93 | 40.63 |
| 6-A-2 | 98.70 | 93 | 73-93 | 100.24 | 63.93 | 34.81 |
| 6-C-1 | 108.49 | 90 | 65-85 | 110.96 | 54.81 | 56.15 |
| 8-A-1 | 156.85 | 135
(124 now) | 115-135 | 156.91 | Dry | <32.91 |
| 10-A-1 | 140.59 | 100 | 80-100 | 140.84 | 59.29 | 81.55 |
| 11-A-1 | 124.21 | 137 | 117-137 | 126.10 | 116.70 | 9.40 |
| 13-A-1 | 86.90 | 99 | 79-99 | 89.35 | 78.64 | 10.71 |

G-12

SAC/T131/053.50

Table G-8
(Continued)

| <u>Well
Number</u> | <u>Ground
Surface
Elevation
(NGVD)</u> | <u>Total
Depth</u> | <u>Screened
Interval</u> | <u>Elevation
of top of
Monument
(NGVD)</u> | <u>Depth
to
Water</u> | <u>Water
Elevation
(NGVD)</u> |
|------------------------|----------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------|-------------------------------|---------------------------------------|
| 13-A-2 | 88.66 | 95 | 75-95 | 88.58 | 77.98 | 10.60 |
| 13-C-1 | 88.19 | 120 | 94-115 | 91.73 | 83.86 | 7.87 |
| 13-C-2 | 85.84 | 150 | 124-145 | 88.52 | 84.93 | 3.59 |
| 13-C-3 | 85.51 | 110 | 84-105 | 88.22 | 78.19 | 10.03 |
| 13-C-4 | 87.81 | 105 | 80-100 | 90.92 | 80.41 | 10.51 |
| 13-C-5 | 92.45 | 117 | 92-112 | 95.57 | 83.22 | 12.35 |
| 13-C-6 | 86.57 | 108 | 83-103 | 89.47 | 88.71 | 0.76 |
| 15-A-1 | 168.89 | 108 | 88-108 | 171.23 | 95.75 | 75.48 |
| 15-A-2 | 133.24 | 82 | 62-82 | 136.40 | 69.38 | 67.02 |
| 15-A-3 | 135.01 | 90 | 70-90 | 137.46 | 67.68 | 69.78 |
| 15-A-4 | 139.63 | 100 | 75-95 | 141.72 | 71.90 | 69.82 |
| 16-C-1 | 159.36 | 39 | 14-34 | 162.43 | 16.72 | 145.71 |
| 18-C-1 | 110.82 | 134 | 109-129 | 113.89 | 110.50 | 3.39 |
| 18-C-2 | 114.07 | 130 | 105-125 | 117.33 | 111.43 | 5.90 |
| 19-C-1 | 114.54 | 104.5 | 79.5-99.5 | 114.87 | 69.40 | 45.47 |
| 19-C-2 | 112.99 | 101 | 65-85 | 116.13 | 68.78 | 47.35 |
| 19-C-3 | 112.17 | 110 | 75-95 | 114.83 | 68.15 | 46.68 |
| 19-C-4 | 109.07 | 148 | 83-143 | 112.73 | 68.06 | 44.67 |
| 21-C-1 | 102.20 | 139 | 104-125 | 105.55 | 99.75 | 5.80 |
| 23-C-1 | 127.76 | 79 | 45-65 | 128.06 | 46.08 | 81.98 |
| BG-C-1 | 169.22 | 99 | 74-94 | 171.54 | 81.54 | 90.00 |
| 3G-C-2 | 159.98 | 109 | 84-104 | 163.54 | 92.12 | 71.42 |

Table G-9
SUMMARY OF GROUNDWATER LEVELS AT BEALE AFB, 1986-1989
(feet NGVD)

| Well
Number | April
1986 | October
1986 | December
1988 | February
1989 | March
1989 | May
1989 | August
1989 | November
1989 |
|----------------|---------------|-----------------|------------------|------------------|---------------|-------------|----------------|------------------|
| 1-A-1 | -13.95 | -12.95 | -- | -0.55 | 0.38 | 1.08 | 1.88 | 2.80 |
| 1-C-1 | -- | -- | -- | -0.22 | 0.65 | 1.38 | 2.19 | 3.05 |
| 1-C-2 | -- | -- | -- | -- | 0.21 | 0.87 | 1.67 | 2.62 |
| 1-C-3 | -- | -- | -- | -- | 0.19 | 0.87 | 1.66 | 2.62 |
| 1-C-4 | -- | -- | -- | -0.71 | 0.23 | 0.89 | 1.70 | 2.64 |
| 1-C-5 | -- | -- | -- | -0.66 | 0.29 | 0.97 | 1.76 | 2.70 |
| 2-A-1 | -16.22 | -15.57 | -6.67 | -1.93 | 0.40 | 0.91 | -0.08 | 3.96 |
| 2-C-1 | -- | -- | -- | -2.43 | 0.48 | -1.32 | -1.88 | 2.60 |
| 2-R-1 | 5.71 | -- | 7.68 | 8.83 | 9.65 | 11.36 | 12.31 | 13.25 |
| 2-R-2 | 7.05 | 9.05 | 8.70 | 9.03 | 9.82 | 11.52 | 12.48 | 13.38 |
| 2-R-3 | 10.44 | 12.27 | 10.71 | 11.21 | 11.85 | 13.53 | 14.57 | 15.36 |
| 2-R-4 | 7.83 | 9.62 | 8.86 | 9.62 | 10.50 | 12.30 | 13.23 | 14.11 |
| 3-A-1 | 2.77 | 2.39 | -- | 2.41 | 2.37 | 2.12 | 2.28 | 2.24 |
| 3-A-2 | 0.70 | 0.73 | 0.53 | 0.35 | 0.21 | -0.04 | 0.22 | -0.12 |
| 3-A-3 | -17.97 | -19.73 | -- | -12.02 | -11.53 | -10.71 | -9.02 | -7.82 |
| 3-A-4 | -19.01 | -19.30 | 12.70 | -11.99 | -11.48 | -10.66 | -8.95 | -7.73 |
| 3-A-5 | -22.08 | -23.51 | -- | -12.27 | -11.71 | -10.83 | -9.07 | -7.79 |
| 3-C-1 | -- | -- | -- | -11.27 | -10.86 | -10.16 | -8.62 | -7.49 |
| 4-A-1 | -5.81 | -3.59 | 4.46 | 4.73 | 5.43 | 5.94 | 7.10 | 7.71 |
| 5-A-1 | -7.71 | -5.54 | -- | 3.26 | 3.74 | 4.38 | 5.54 | 6.22 |
| 5-C-1 | -- | -- | -- | 2.86 | 3.30 | 3.94 | 5.09 | 5.75 |
| 6-A-1 | 38.00 | 37.01 | 38.32 | 39.67 | 40.60 | 40.57 | 38.48 | 40.63 |
| 6-A-2 | 34.24 | 32.36 | 33.63 | 35.58 | 36.62 | 36.67 | 33.63 | 36.31 |
| 6-C-1 | -- | -- | -- | 55.48 | 56.10 | 56.36 | 56.03 | 56.15 |
| 8-A-1 | 31.13 | 32.46 | <32.91 | <32.91 | <32.91 | <32.91 | <32.91 | <32.91 |
| 10-A-1 | 78.66 | 79.61 | 80.81 | 80.95 | 81.46 | 81.39 | 81.61 | 81.55 |
| 11-A-1 | -3.80 | -1.68 | 5.79 | -- | 7.07 | 7.58 | 8.76 | 9.40 |
| 13-A-1 | 7.15 | 8.20 | 7.10 | 7.49 | 8.01 | 10.27 | 10.42 | 10.71 |
| 13-A-2 | 1.15 | 3.16 | 4.77 | 6.21 | 7.38 | 9.06 | 9.43 | 10.60 |

G-14

SAC/T131/053.50

Table G-9
(Continued)

| <u>Well
Number</u> | <u>April
1986</u> | <u>October
1986</u> | <u>December
1988</u> | <u>February
1989</u> | <u>March,
1989</u> | <u>May
1989</u> | <u>August
1989</u> | <u>November
1989</u> |
|------------------------|-----------------------|-------------------------|--------------------------|--------------------------|------------------------|---------------------|------------------------|--------------------------|
| 13-C-1 | -- | -- | -- | 2.90 | 3.78 | 5.28 | 6.16 | 7.87 |
| 13-C-2 | -- | -- | -- | -1.57 | 0.26 | 1.00 | 0.49 | 3.59 |
| 13-C-3 | -- | -- | -- | 5.61 | 6.81 | 8.35 | 8.77 | 10.03 |
| 13-C-4 | -- | -- | -- | 6.14 | 7.36 | 8.91 | 9.29 | 10.51 |
| 13-C-5 | -- | -- | -- | 7.77 | 8.93 | 10.64 | 11.25 | 12.35 |
| 13-C-6 | -- | -- | -- | -- | -- | -- | -- | 0.76 |
| 15-A-1 | 76.23 | 76.58 | 75.96 | 75.67 | 75.77 | 77.16 | 75.47 | 75.48 |
| 15-A-2 | 68.60 | 68.40 | 66.86 | 66.82 | 66.97 | 67.32 | 67.00 | 67.02 |
| 15-A-3 | 71.40 | 70.55 | 69.92 | 69.81 | 69.82 | 70.01 | 69.88 | 69.78 |
| 15-A-4 | 72.60 | 70.68 | 69.89 | 69.74 | 69.70 | 69.88 | 69.93 | 69.82 |
| 16-C-1 | -- | -- | -- | -- | 147.64 | 148.71 | 147.53 | 145.71 |
| 18-C-1 | -- | -- | -- | -1.06 | 0.19 | 1.25 | 2.10 | 3.39 |
| 18-C-2 | -- | -- | -- | -2.72 | 3.07 | 4.06 | 4.85 | 5.90 |
| 19-C-1 | -- | -- | -- | 44.81 | 45.41 | 45.44 | 44.12 | 45.47 |
| 19-C-2 | -- | -- | -- | 46.59 | 47.07 | 47.46 | 46.44 | 47.35 |
| 19-C-3 | -- | -- | -- | 45.98 | 46.49 | 46.80 | 45.70 | 46.68 |
| 19-C-4 | -- | -- | -- | 44.12 | 44.76 | 44.65 | 43.26 | 44.67 |
| 21-C-1 | -- | -- | -- | 2.83 | 3.42 | 3.98 | 5.14 | 5.80 |
| 23-C-1 | -- | -- | -- | 81.51 | 81.19 | 81.67 | 81.91 | 81.98 |
| BG-C-1 | -- | -- | -- | 89.83 | 89.65 | 89.60 | 89.94 | 90.00 |
| BG-C-2 | -- | -- | -- | 71.66 | 71.57 | 71.49 | 71.51 | 71.42 |

APPENDIX H GEOPHYSICAL DATA

Individual magnetometer survey lines for the magnetic geophysical surveys conducted in Stage 2-1 at IRP Sites 16, 17, 20, and 22 are presented in Appendix H.

The procedure for establishing the grid lines for the magnetometer survey at Sites 16, 17, and 20 consisted of establishing a 20- or 40-foot rectangular grid in the area where buried metal was suspected. This area was determined and a zero point was located based on field reconnaissance at each site. Grid line designations presented in Appendix H are the indicated distance east or west of this zero point.

A geophysical survey was conducted at Site 20 to determine if additional buried grease pits may be present in the area surrounding the existing grease pit. The west side of Site 20 was surveyed, overlapping onto Site 13. The Site 20 data presented in Appendix H is titled Landfill No. 1. The data applies to both Site 13 and Site 20.

The procedure for evaluating the presence of underground abandoned tanks at Site 22 consisted of setting up a small grid on a tank-by-tank basis. The grid was comprised of three lines 60 feet long and 10 feet apart, and was centered on the tank location specified on the 1944 Camp Beale maps. When an anomaly was located at the edge of the grid, the grid was extended to include the entire anomaly.

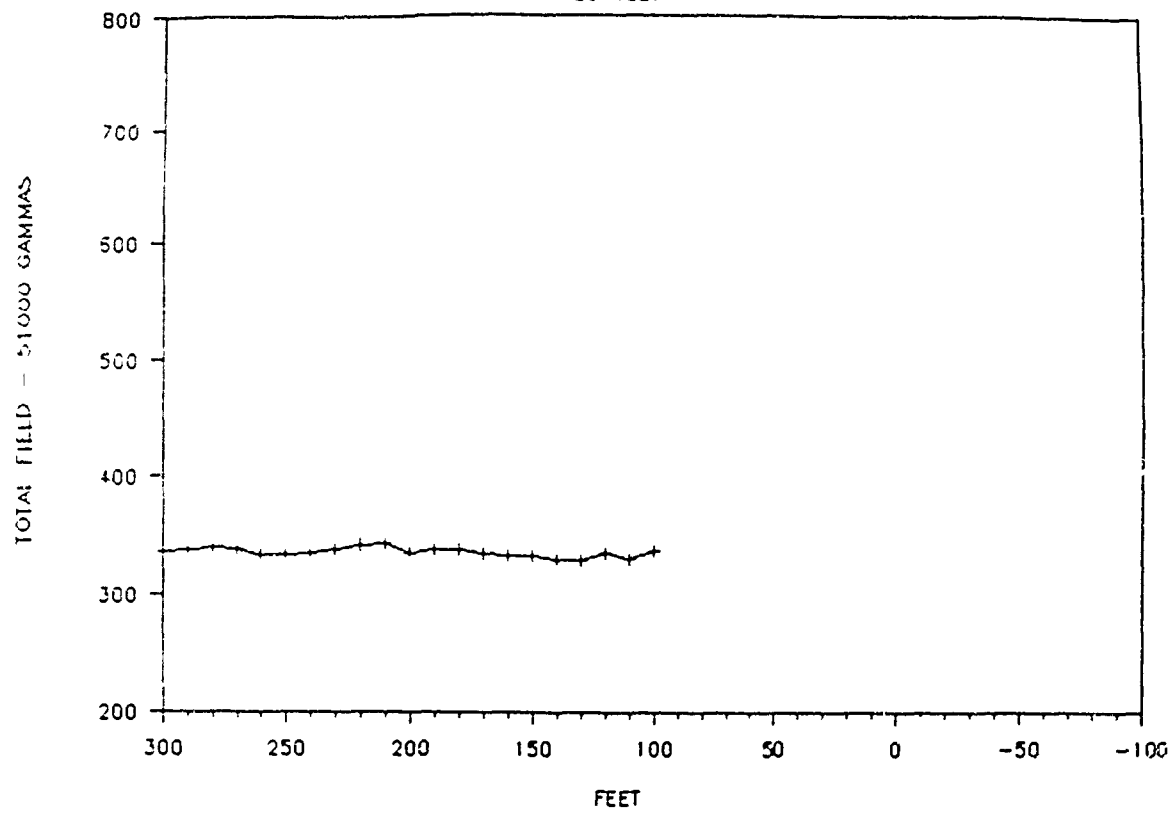
SITE 16

EXPLOSIVE ORDNANCE DISPOSAL (EOD) AREA

Geophysical Data

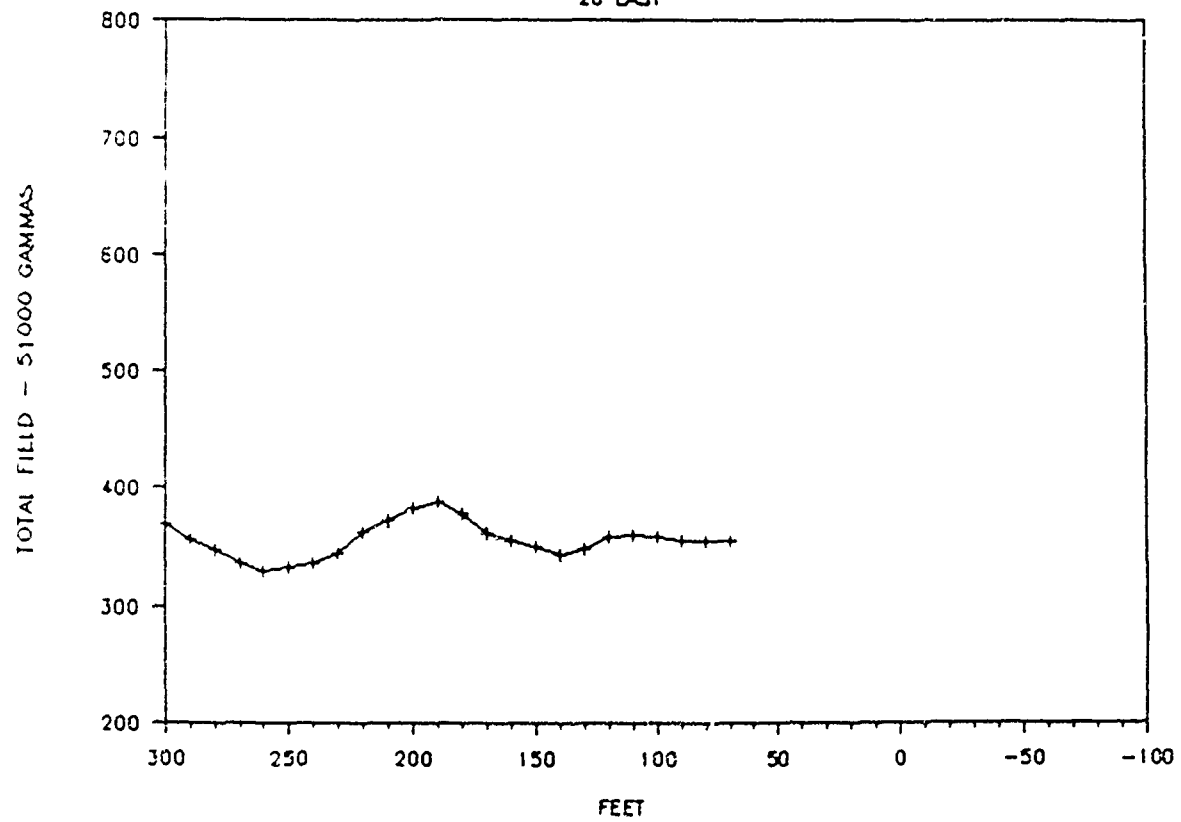
EOD-SITE 16

20 WEST



EOD-SITE 16

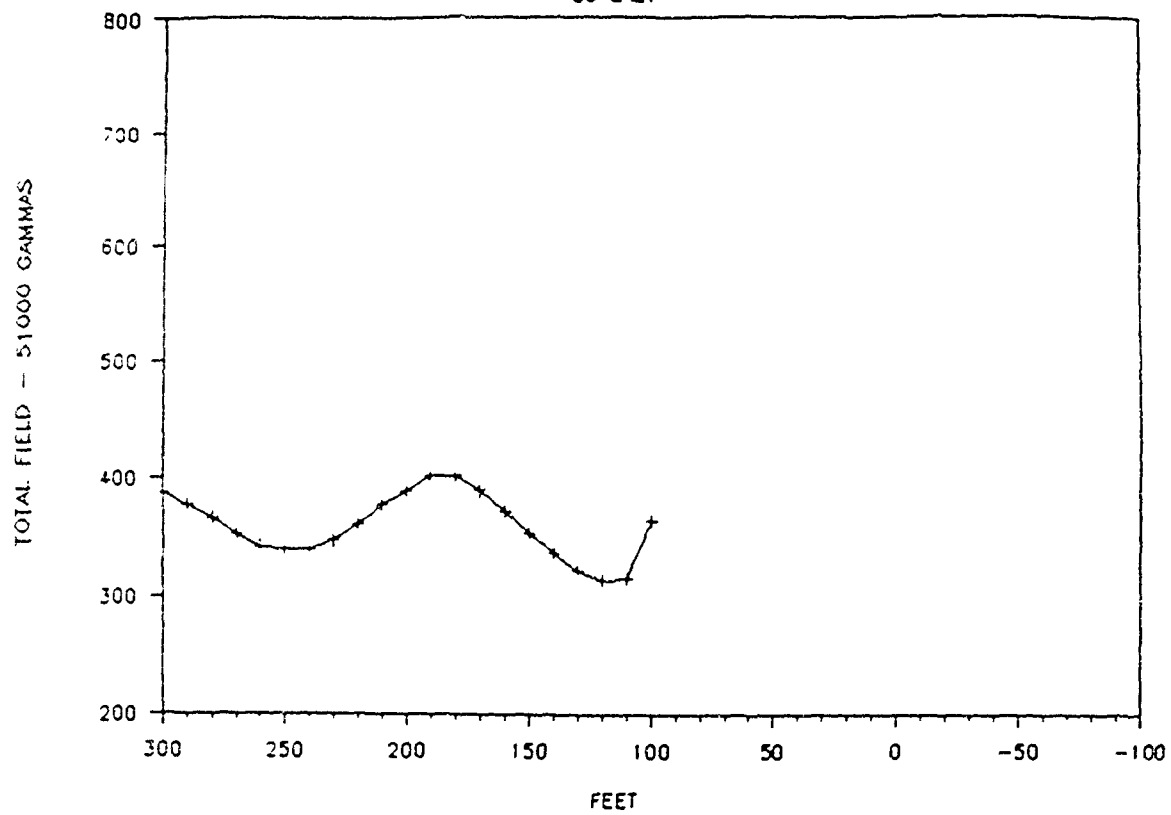
20 EAST



H-1

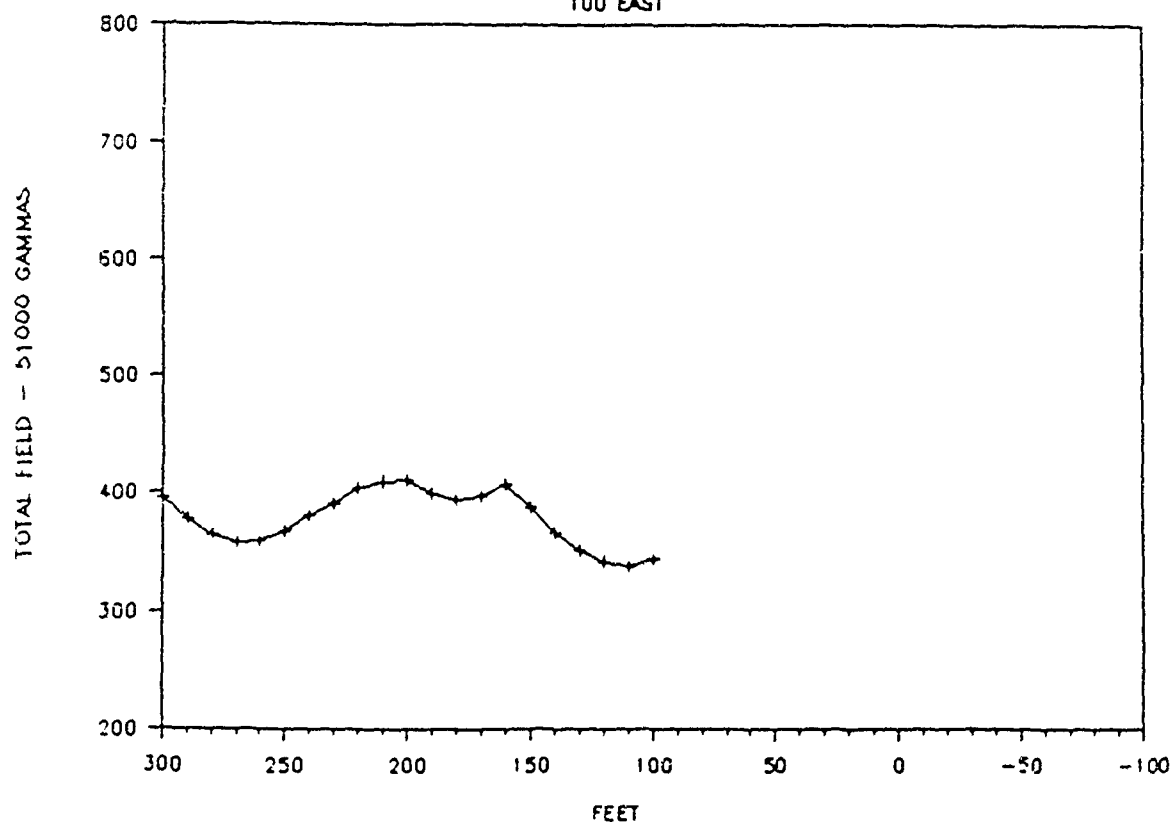
EOD-SITE 16

60 EAST



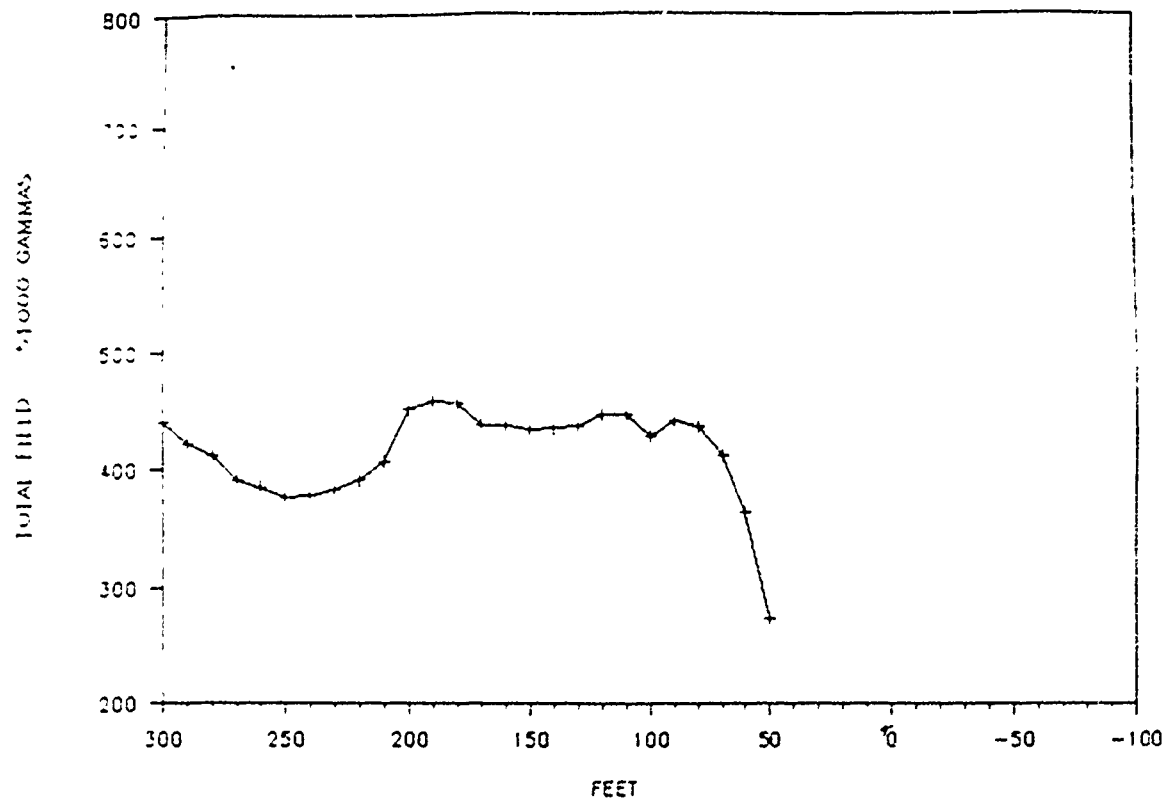
EOD-SITE 16

100 EAST



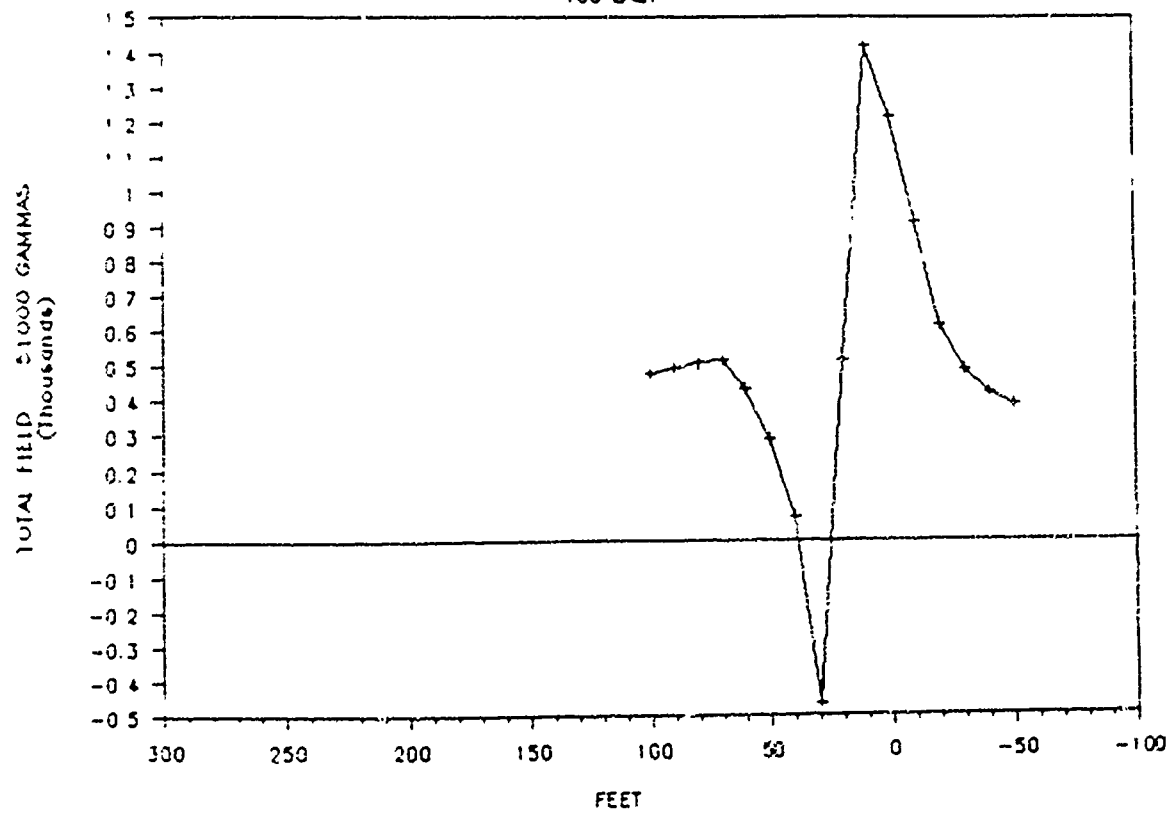
EOD-SITE 16

140 EAST



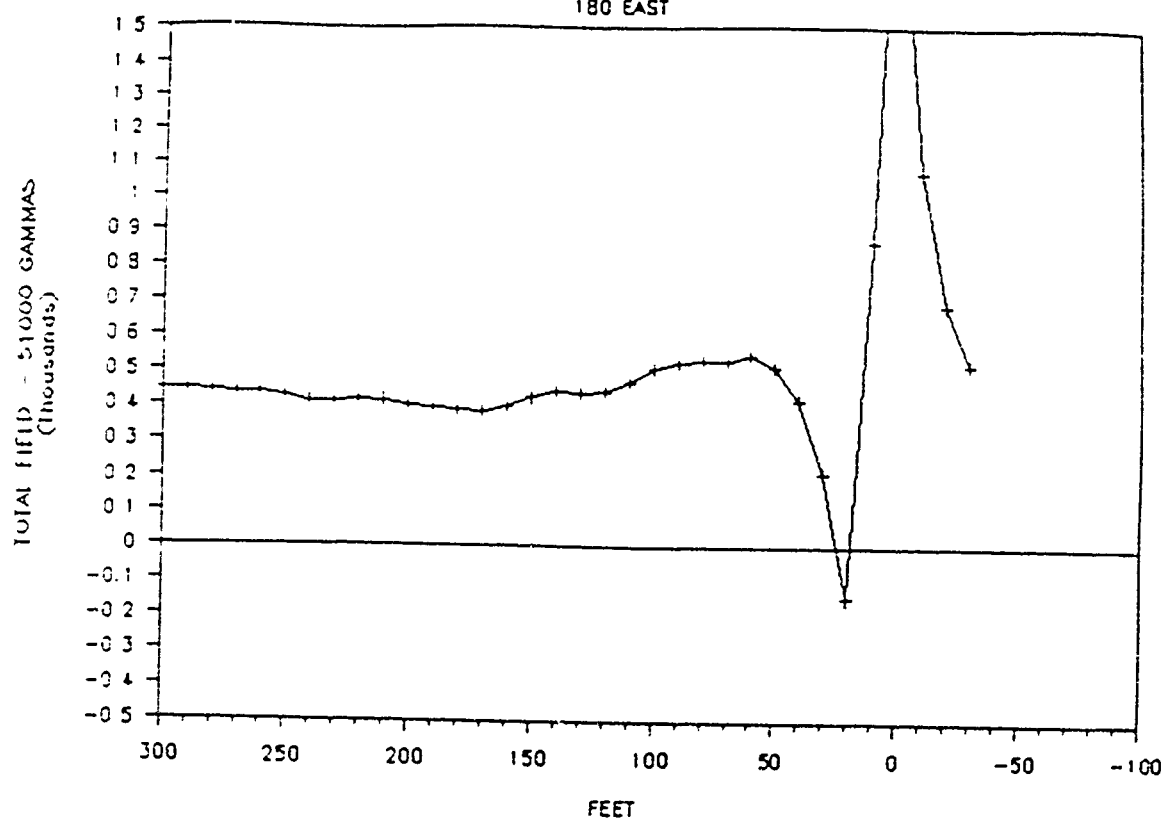
EOD-SITE 16

160 EAST



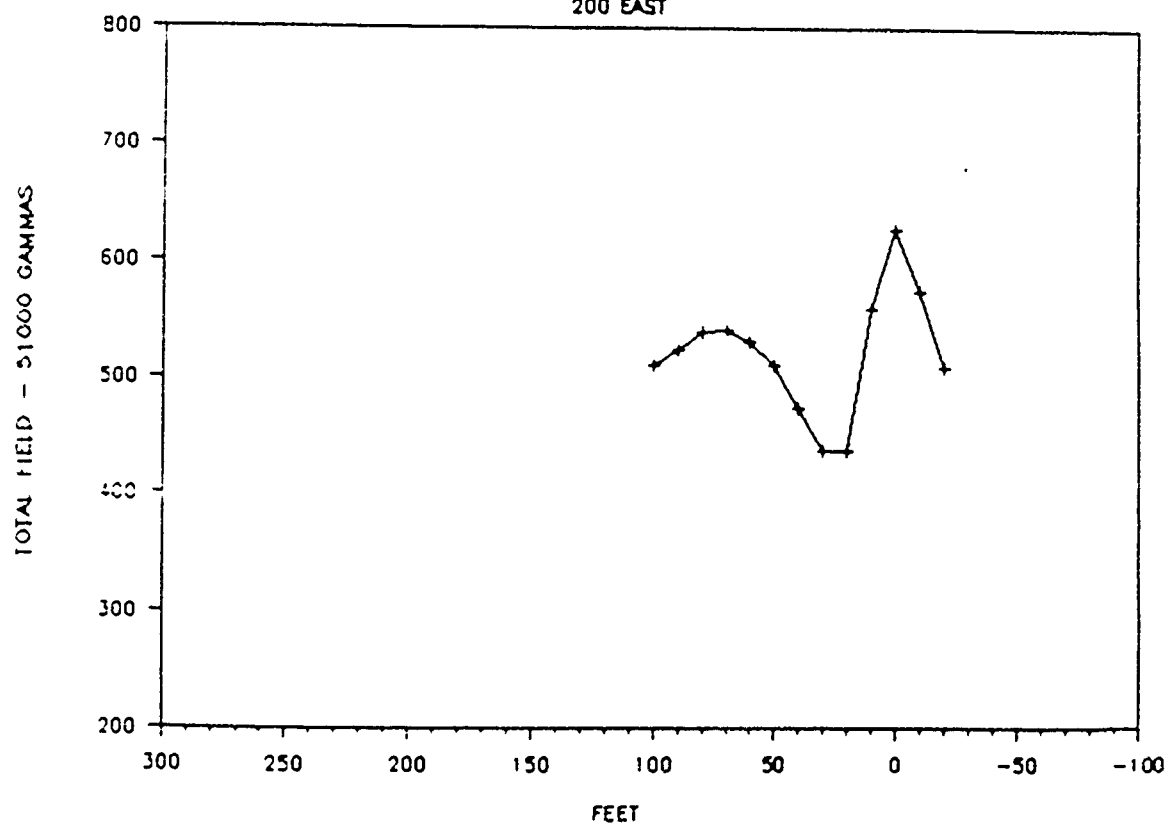
EOD-SITE 16

180 EAST



EOD-SITE 16

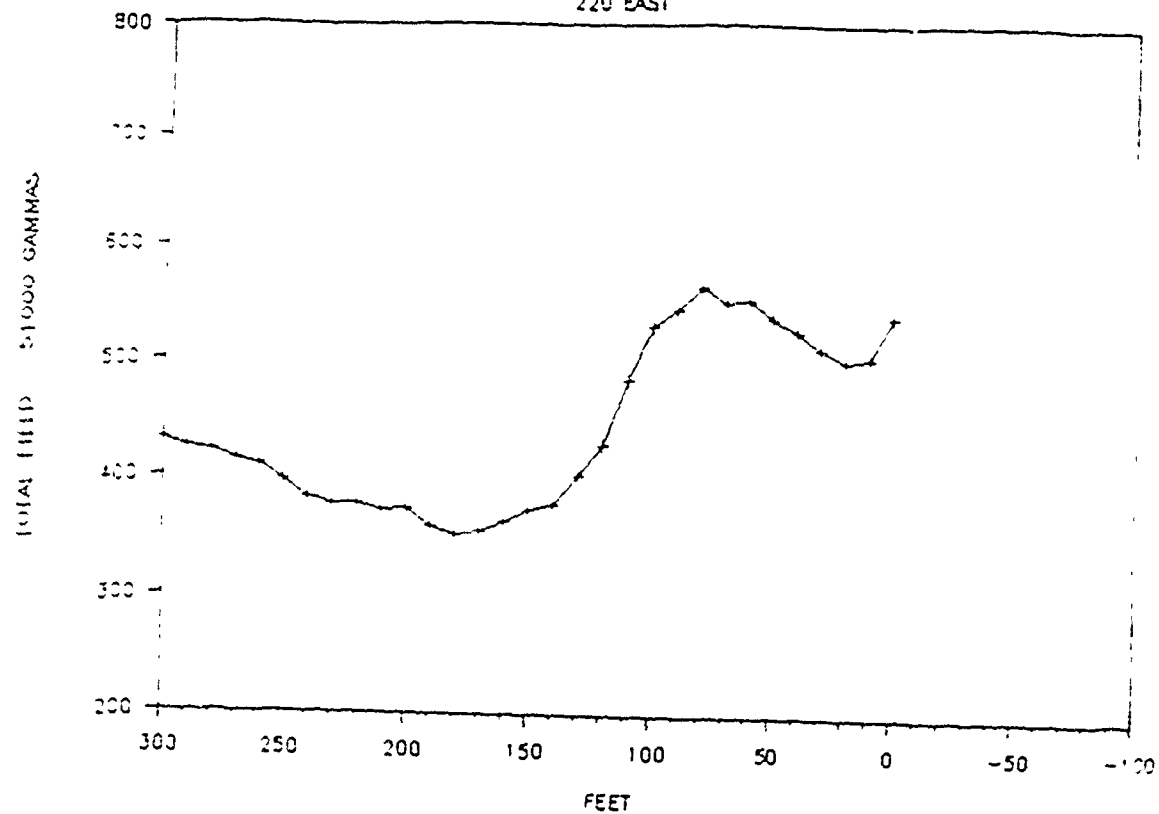
200 EAST



H-4

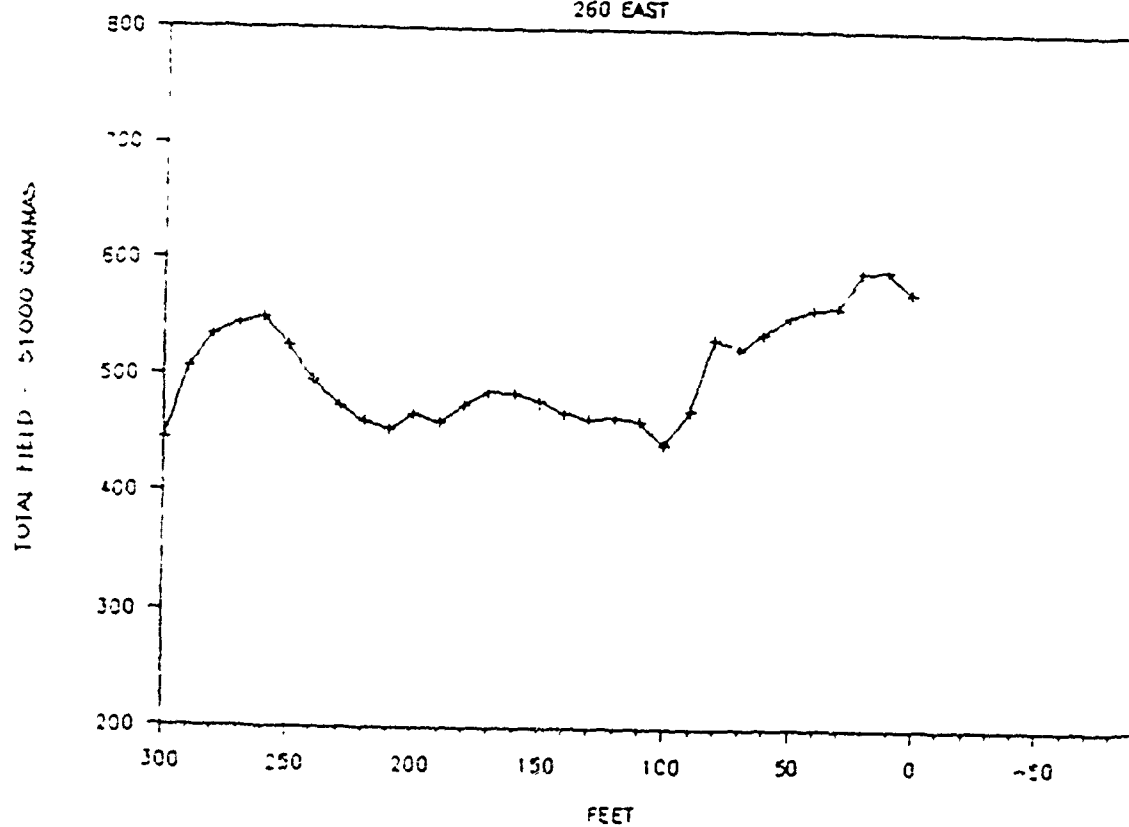
EOD-SITE 16

220 EAST



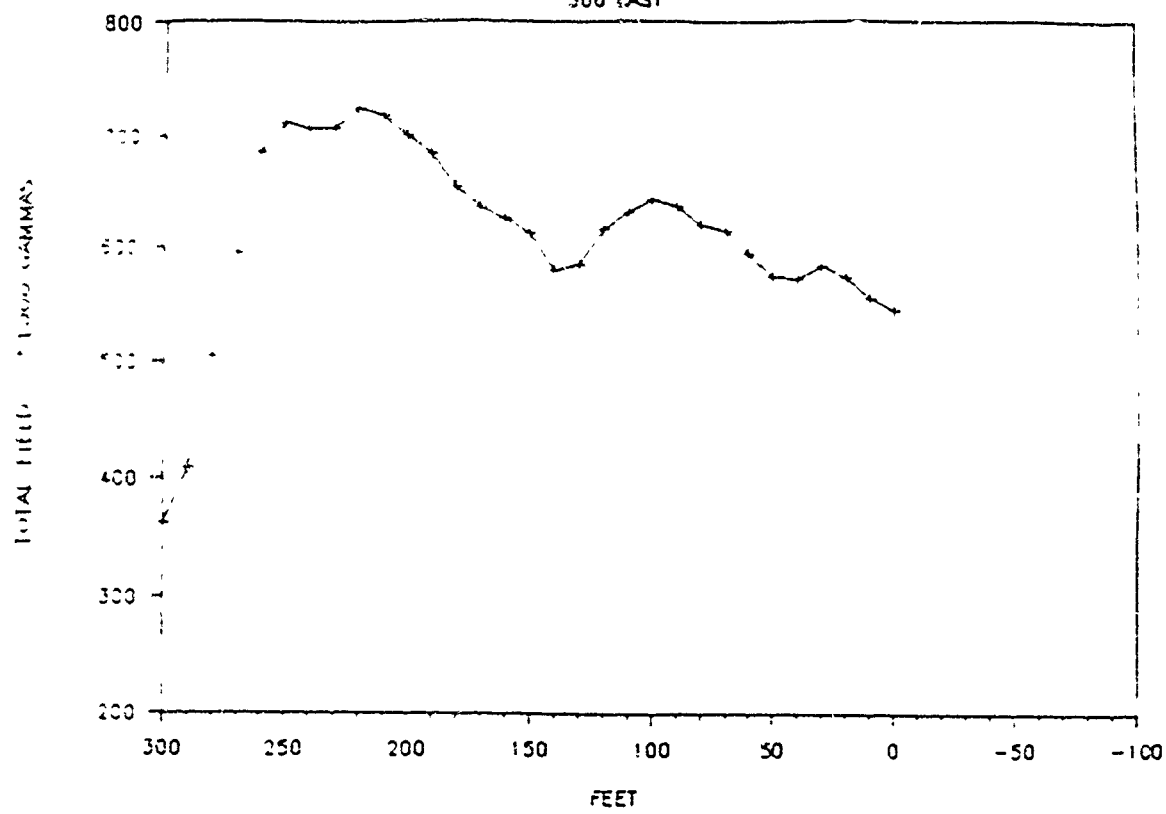
EOD-SITE 16

260 EAST



EOD-SITE 16

300 EAST



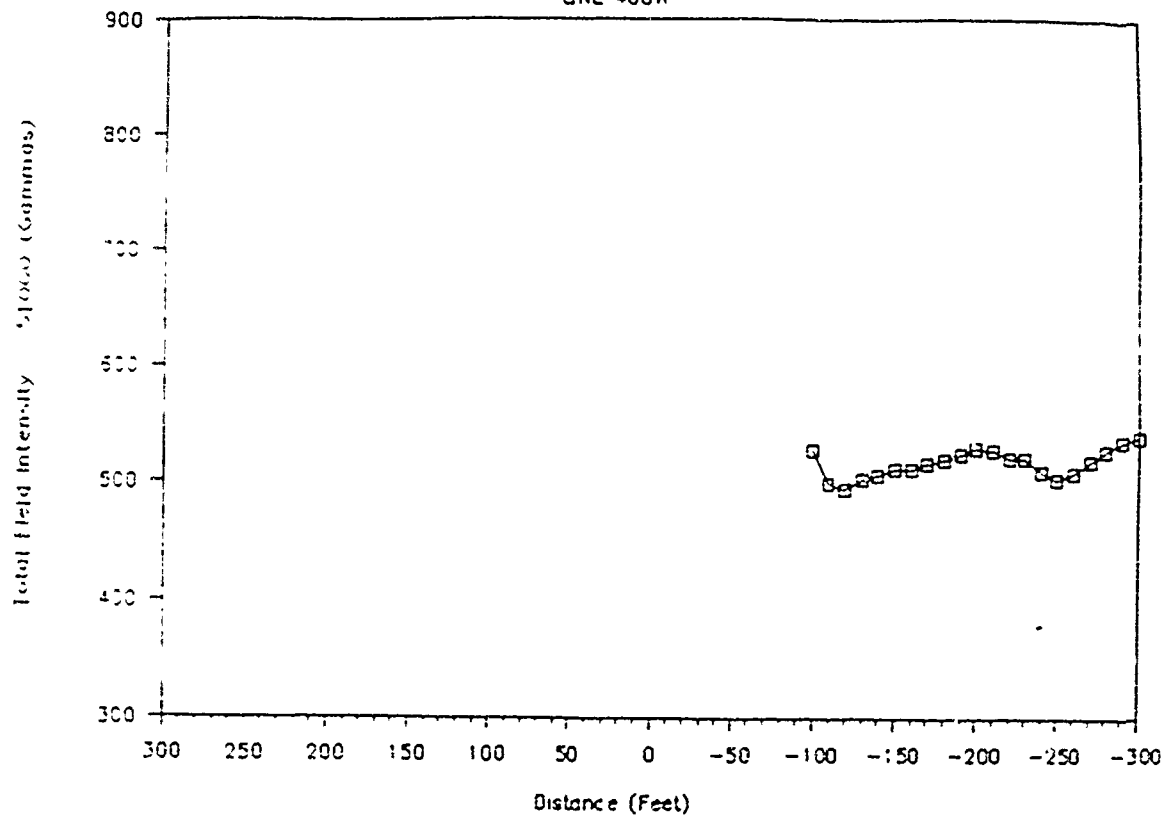
SITE 17

BEST SLOUGH

Geophysical Data

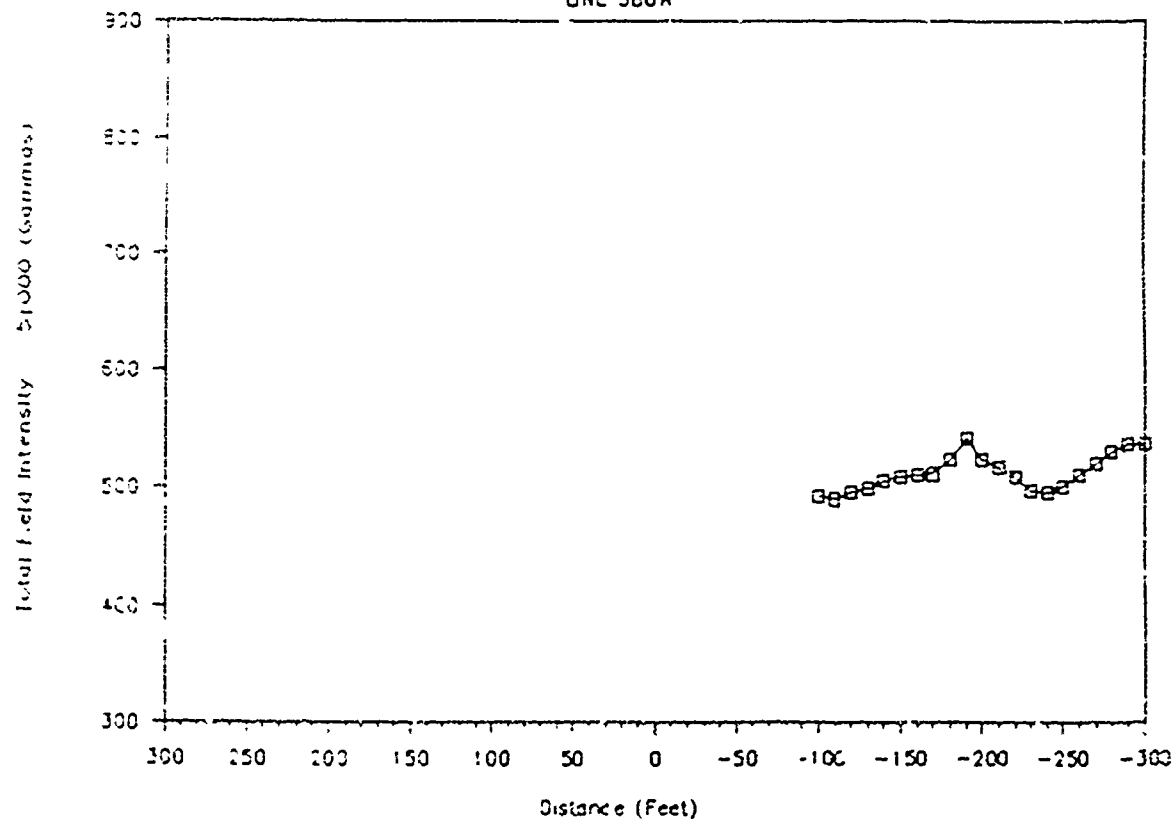
BEST SLOUGH

UNE 400W



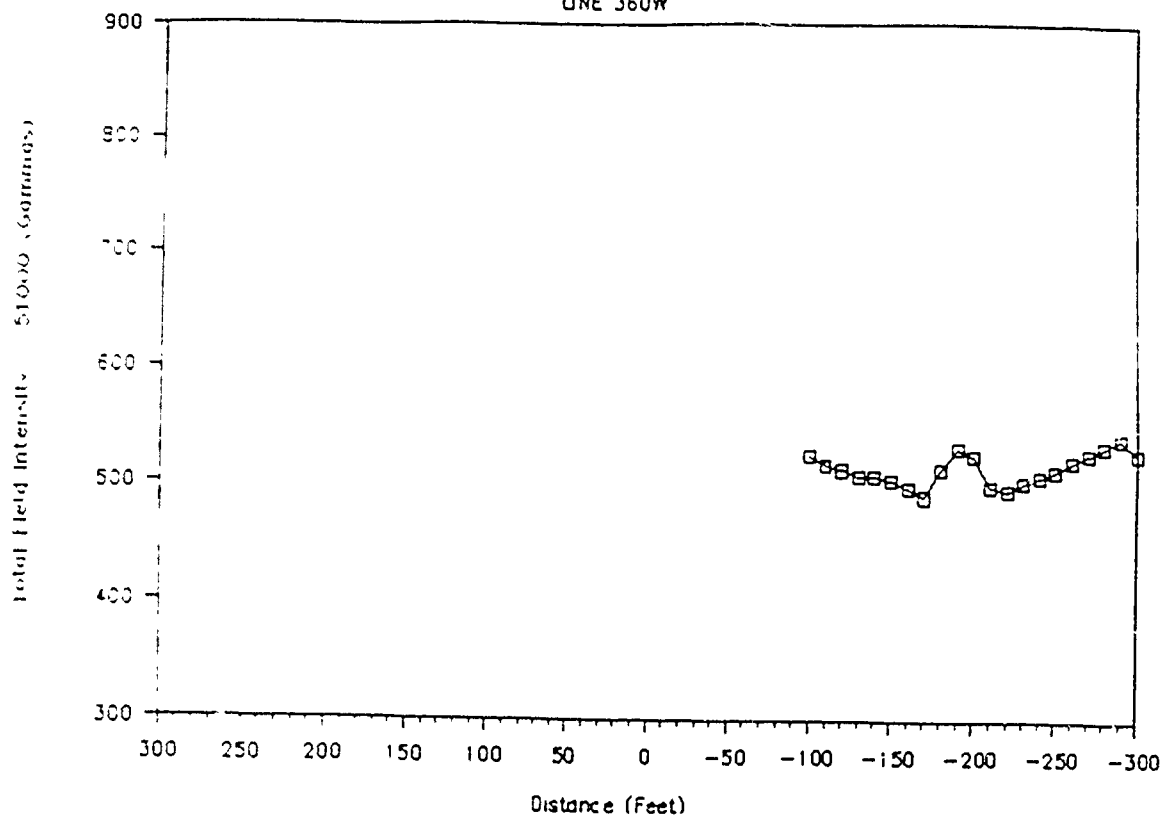
BEST SLOUGH

UNE 380W



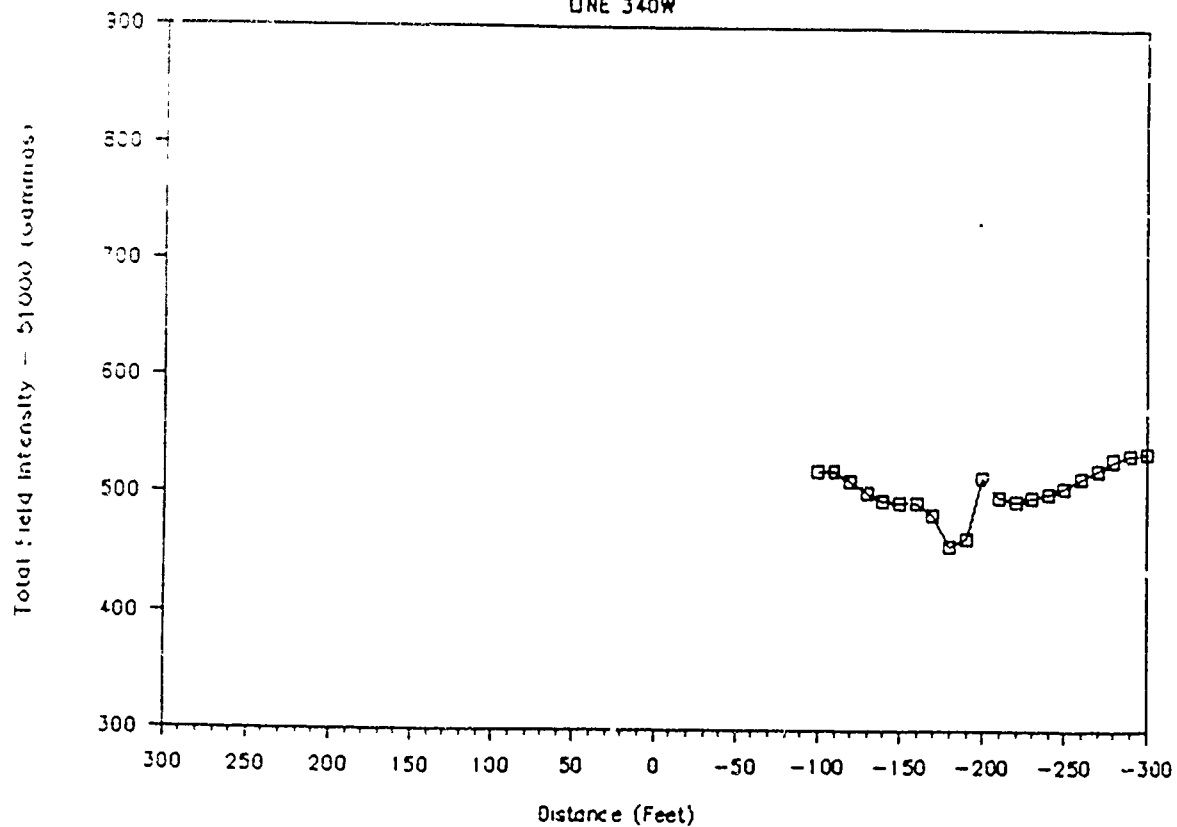
BEST SLOUGH

LINE 360W



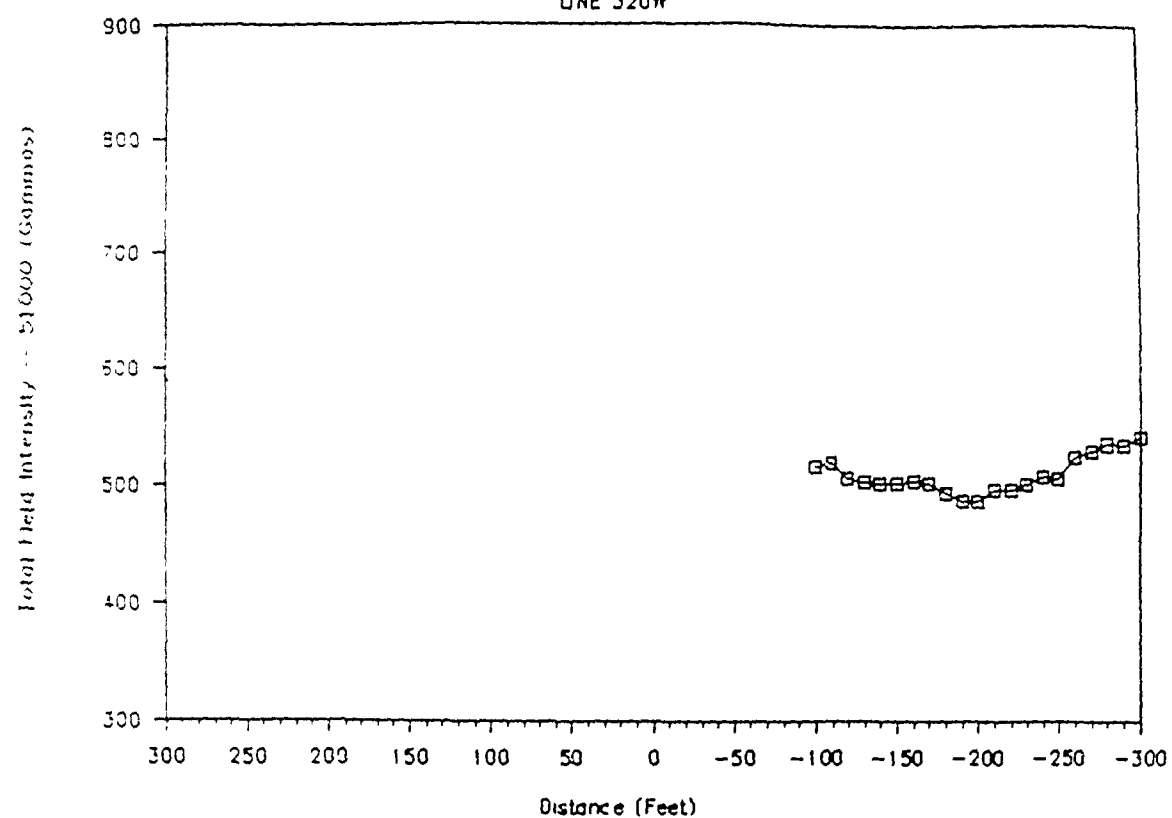
BEST SLOUGH

LINE 340W



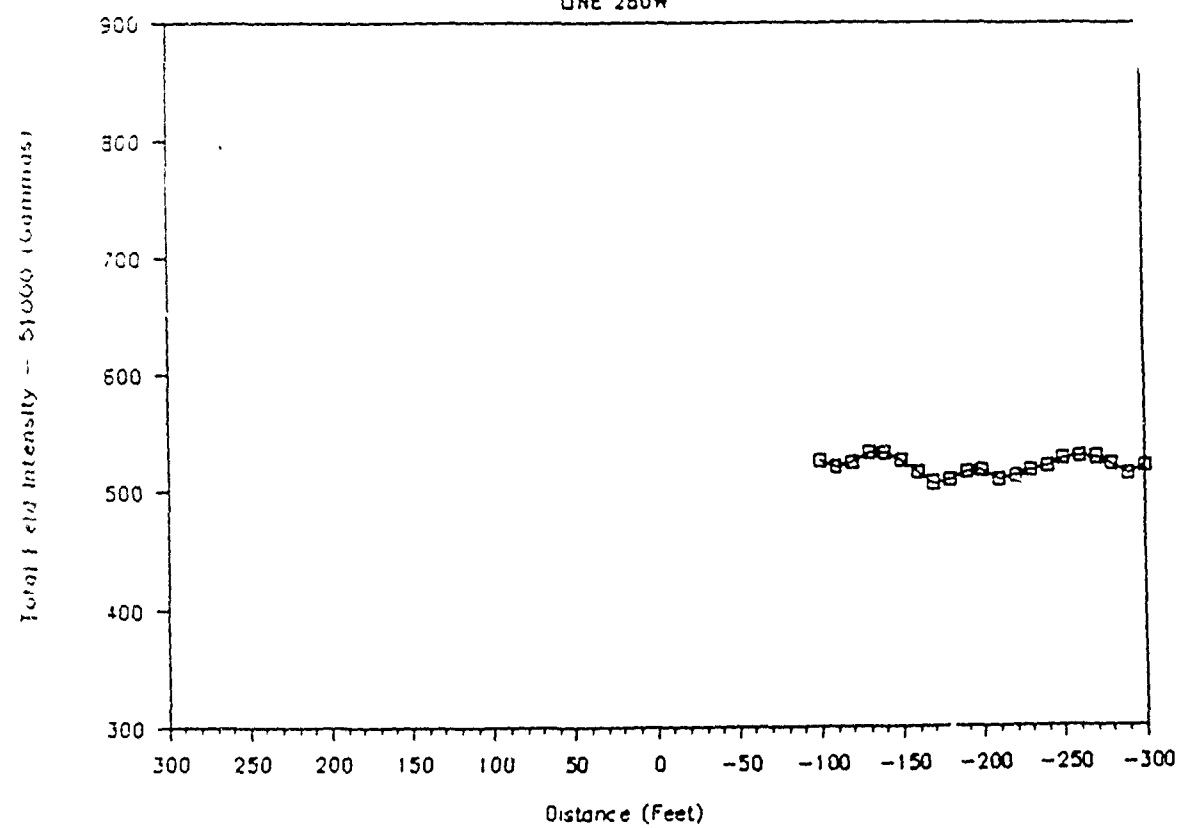
BEST SLOUGH

LINE 320W



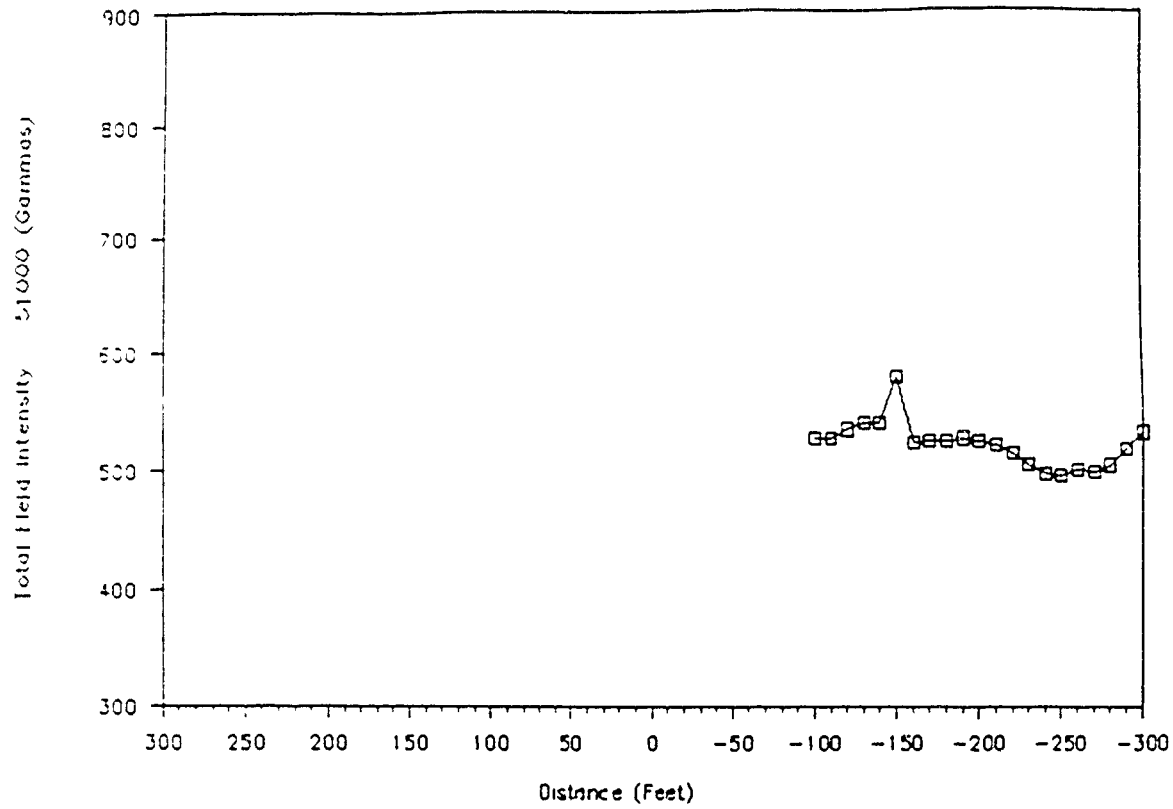
BEST SLOUGH

LINE 280W



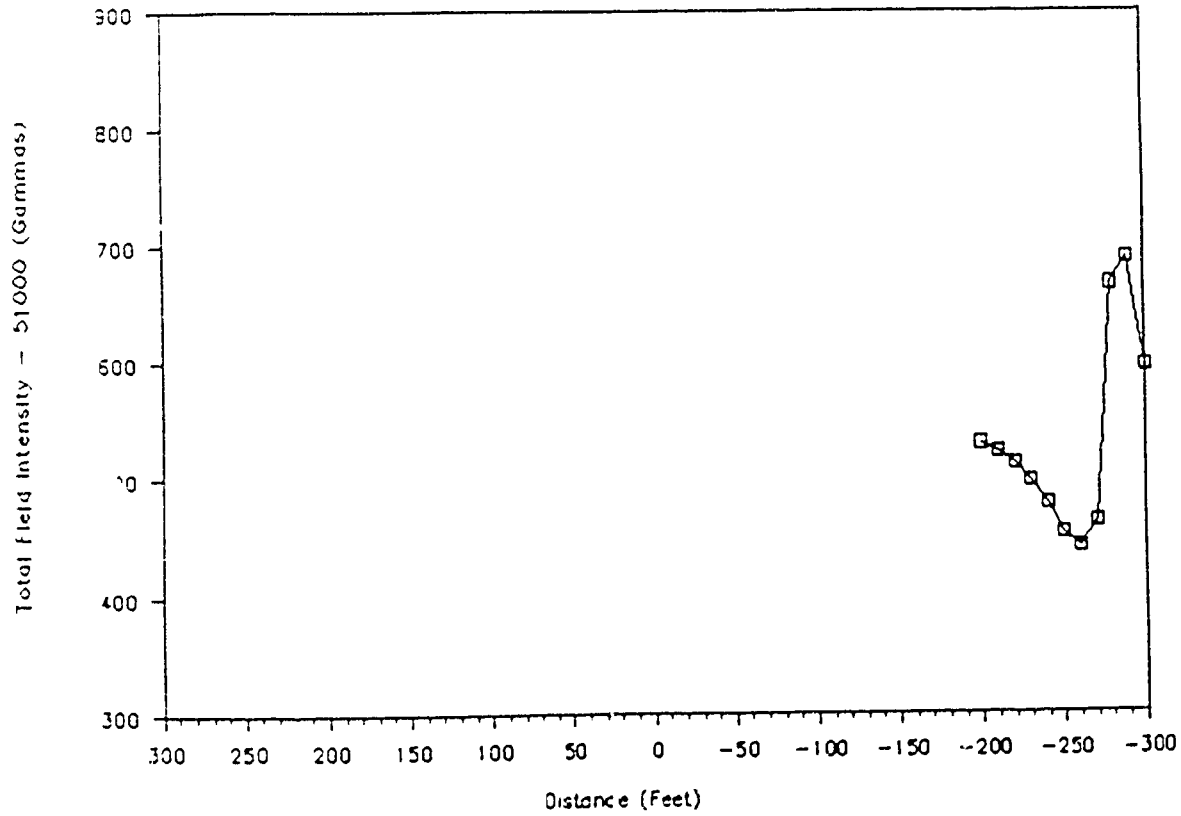
BEST SLOUGH

UNE 240W



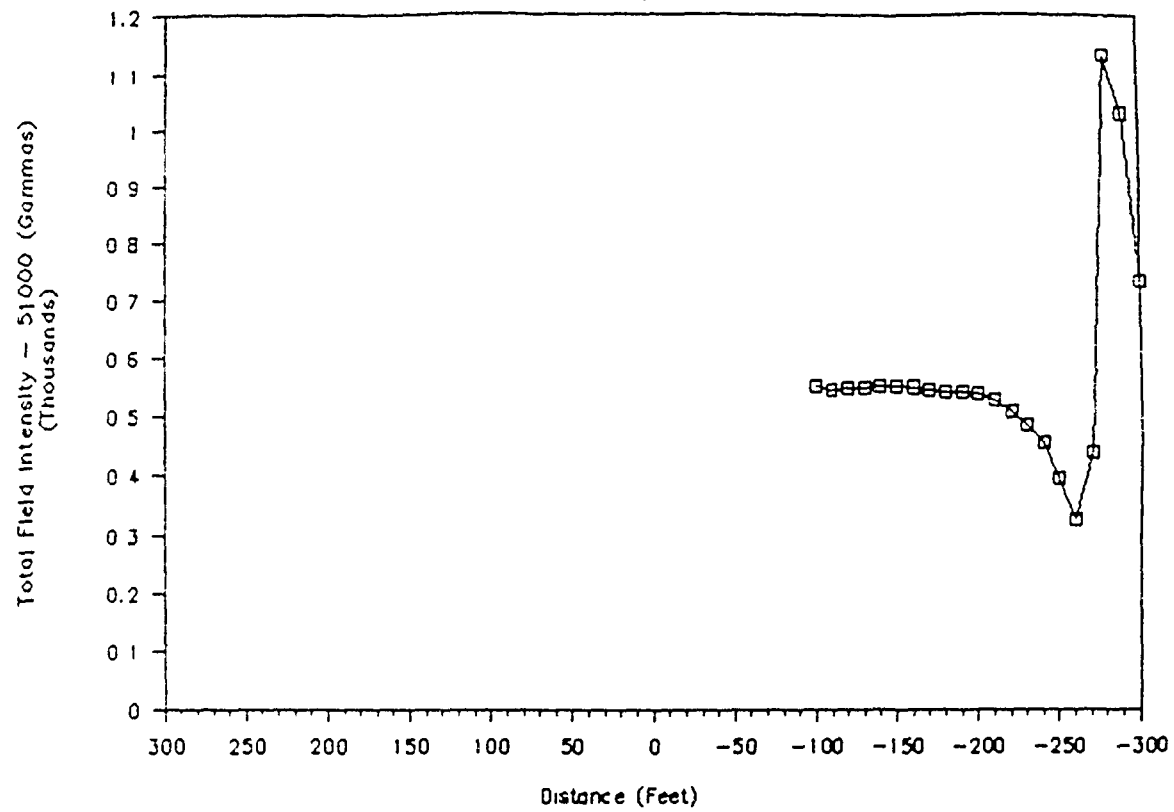
BEST SLOUGH

UNE 220W



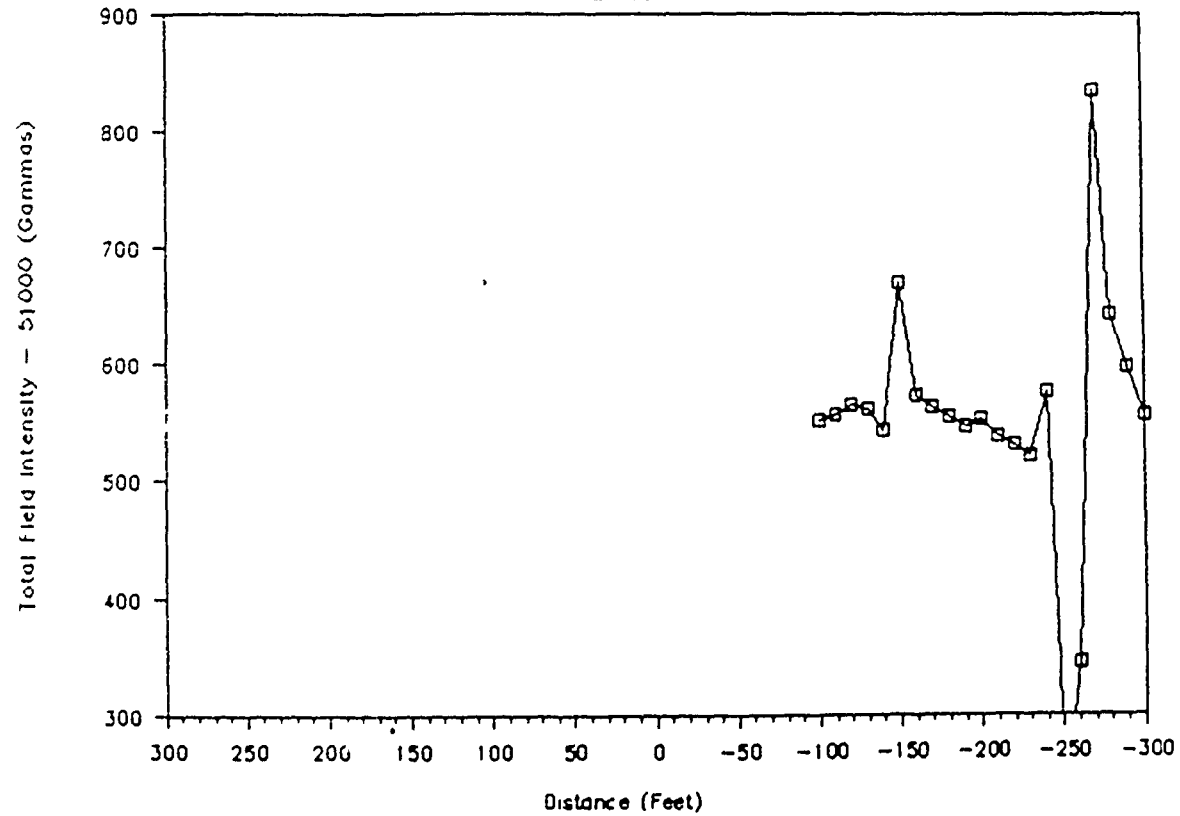
BEST SLOUGH

UNE 200W



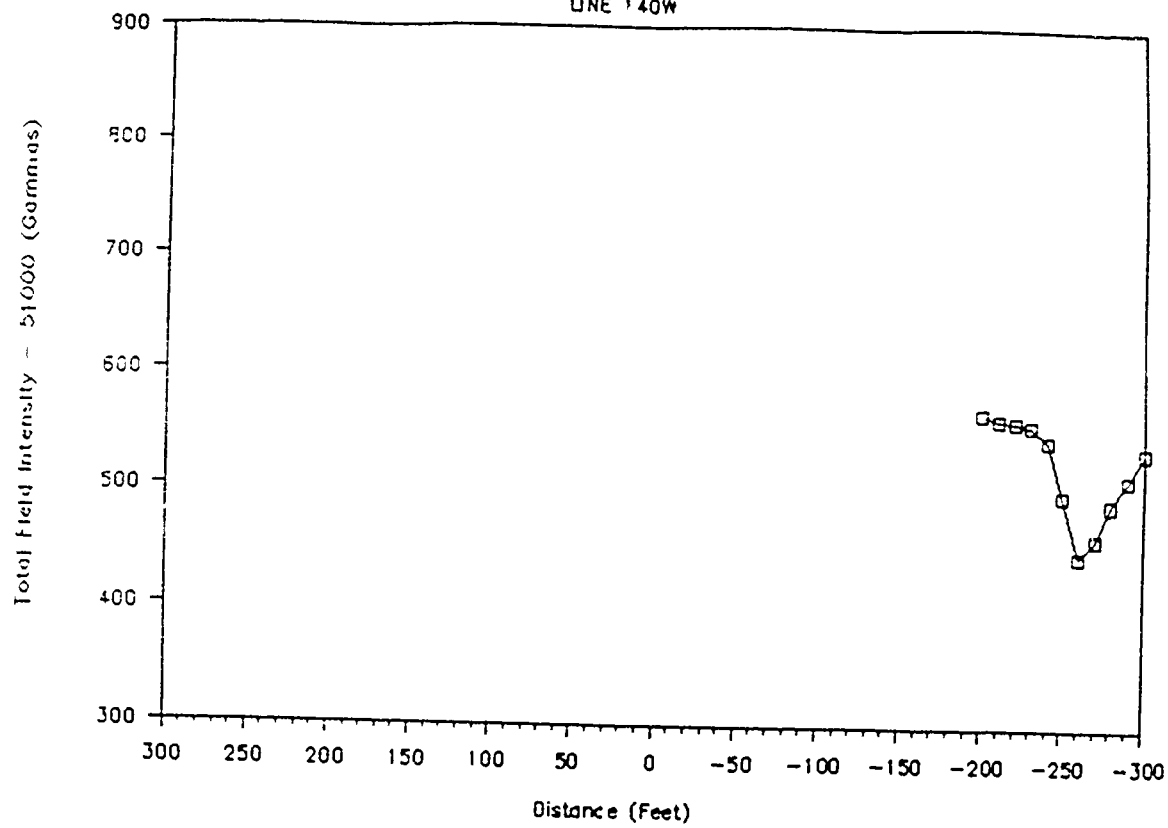
BEST SLOUGH

UNE 160W



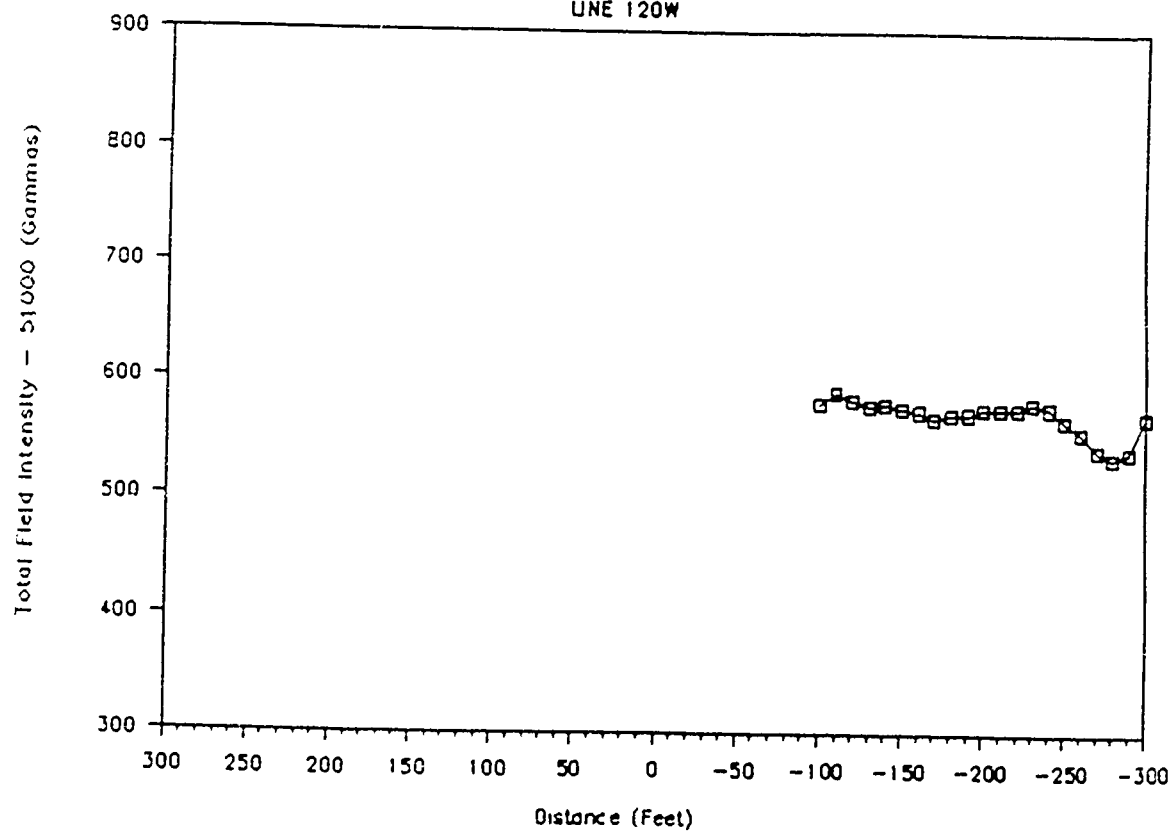
BEST SLOUGH

LINE 140W



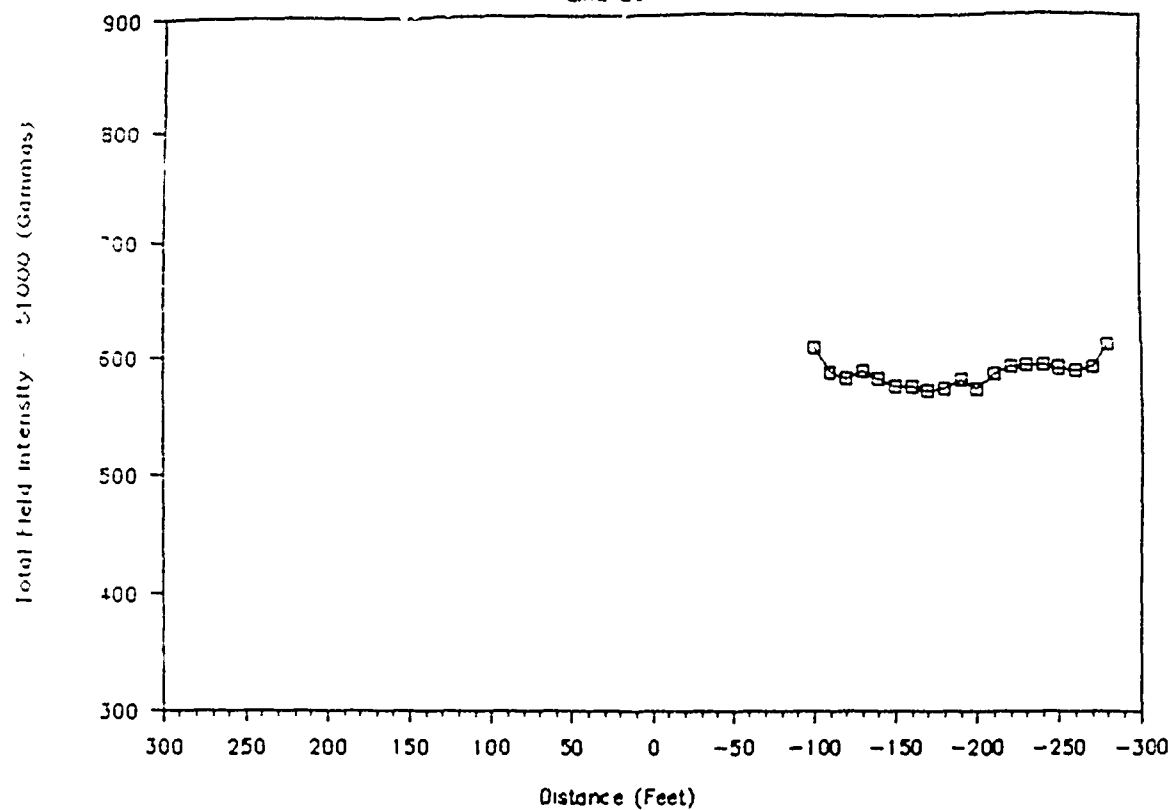
BEST SLOUGH

LINE 120W



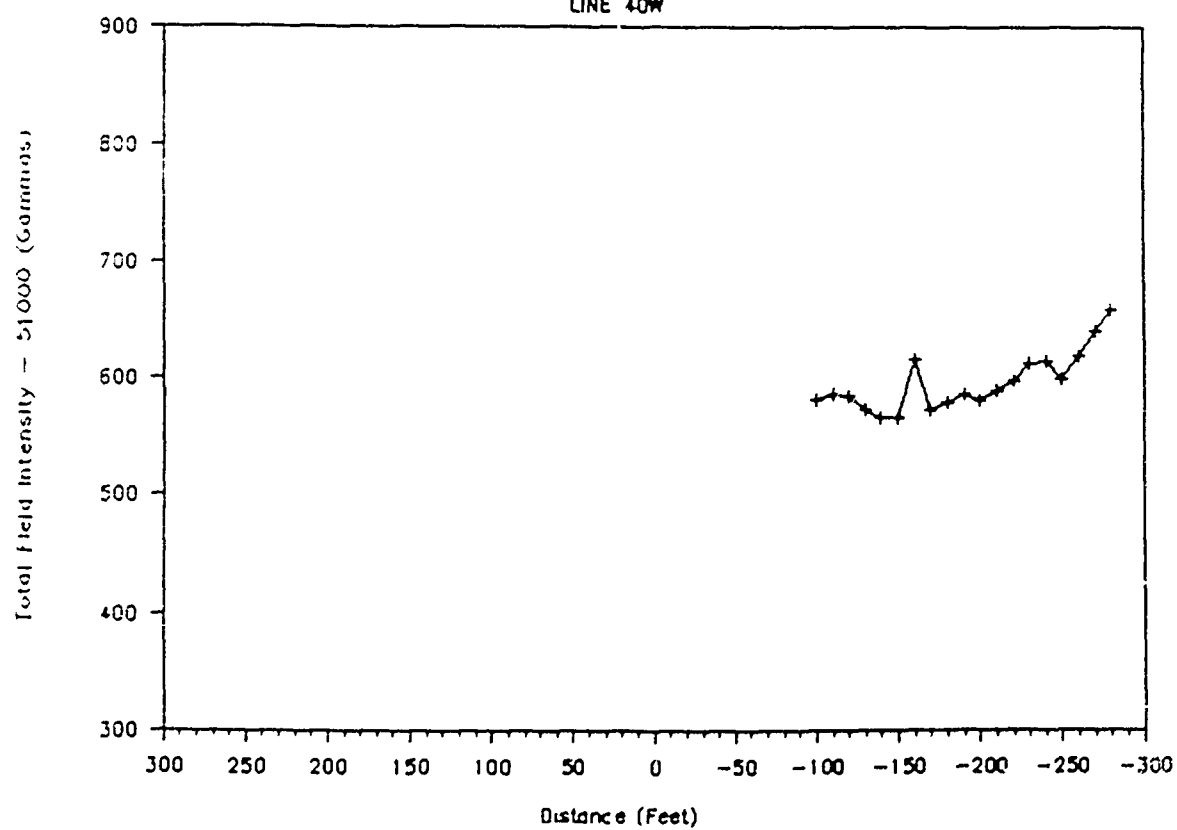
BEST SLOUGH

LINE 80W



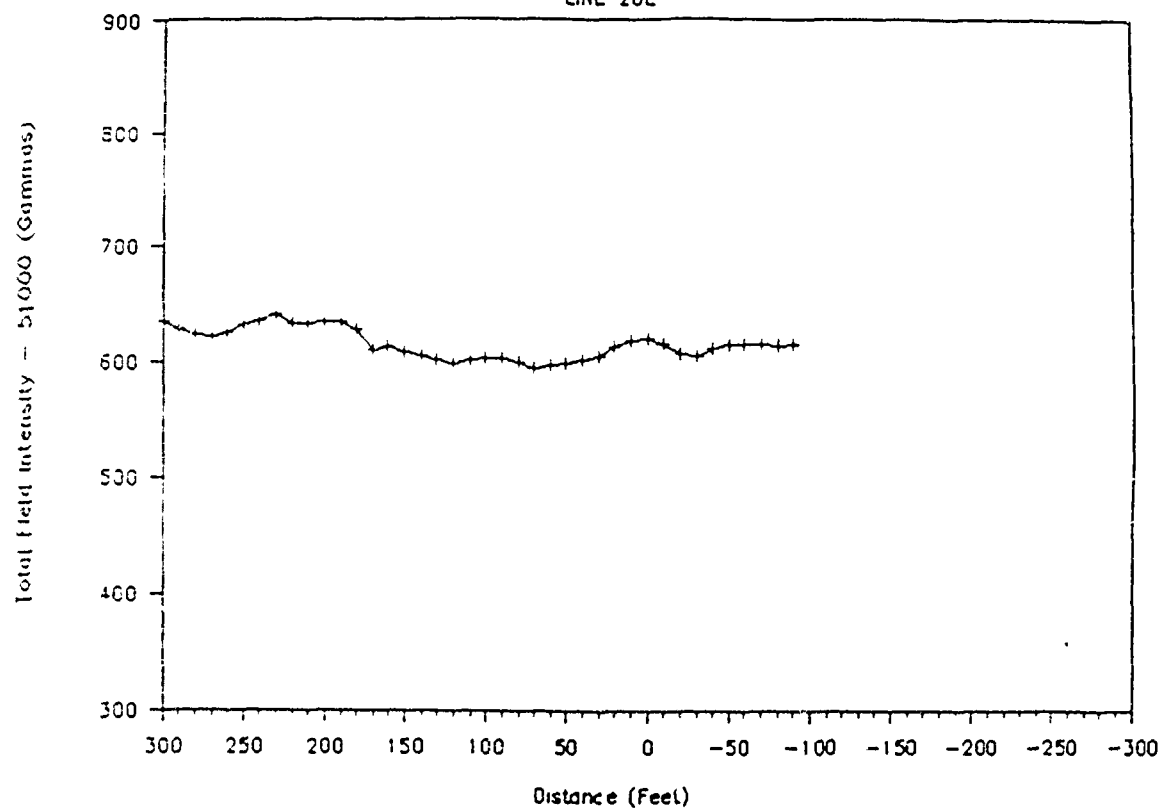
BEST SLOUGH

LINE 40W



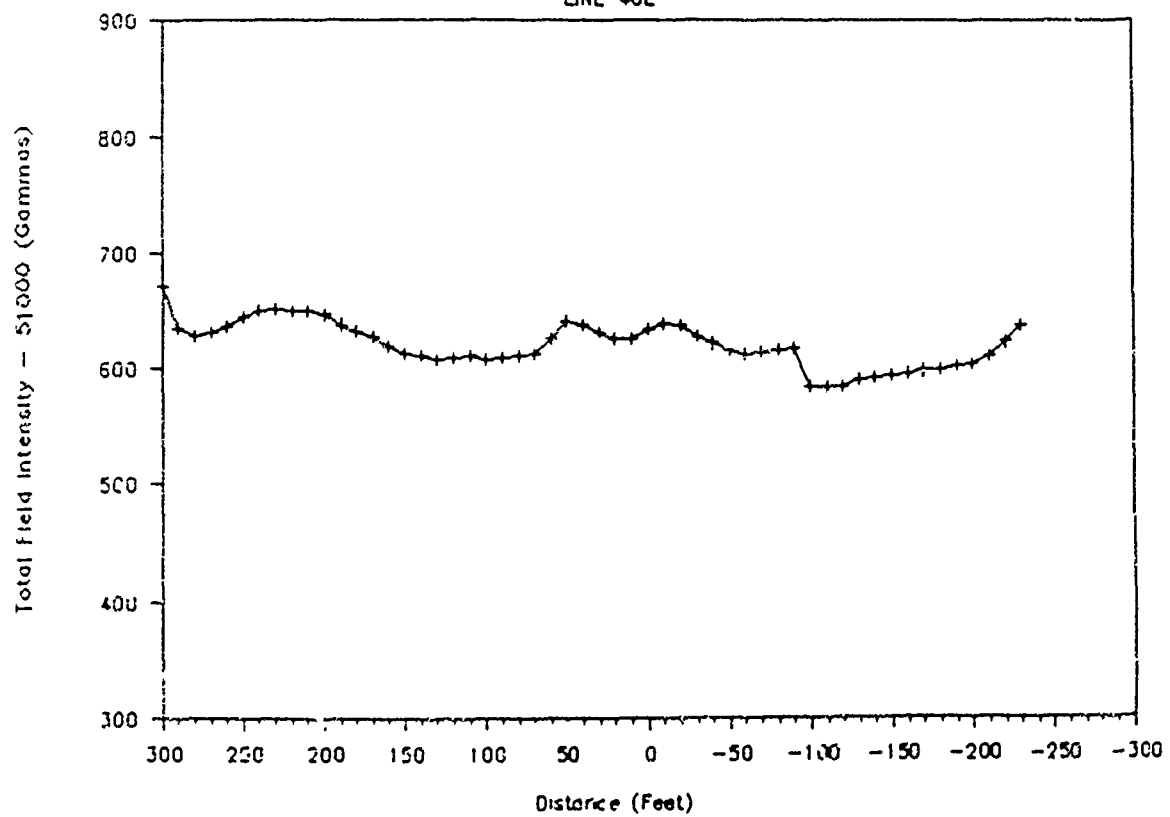
BEST SLOUGH

LINE 20E



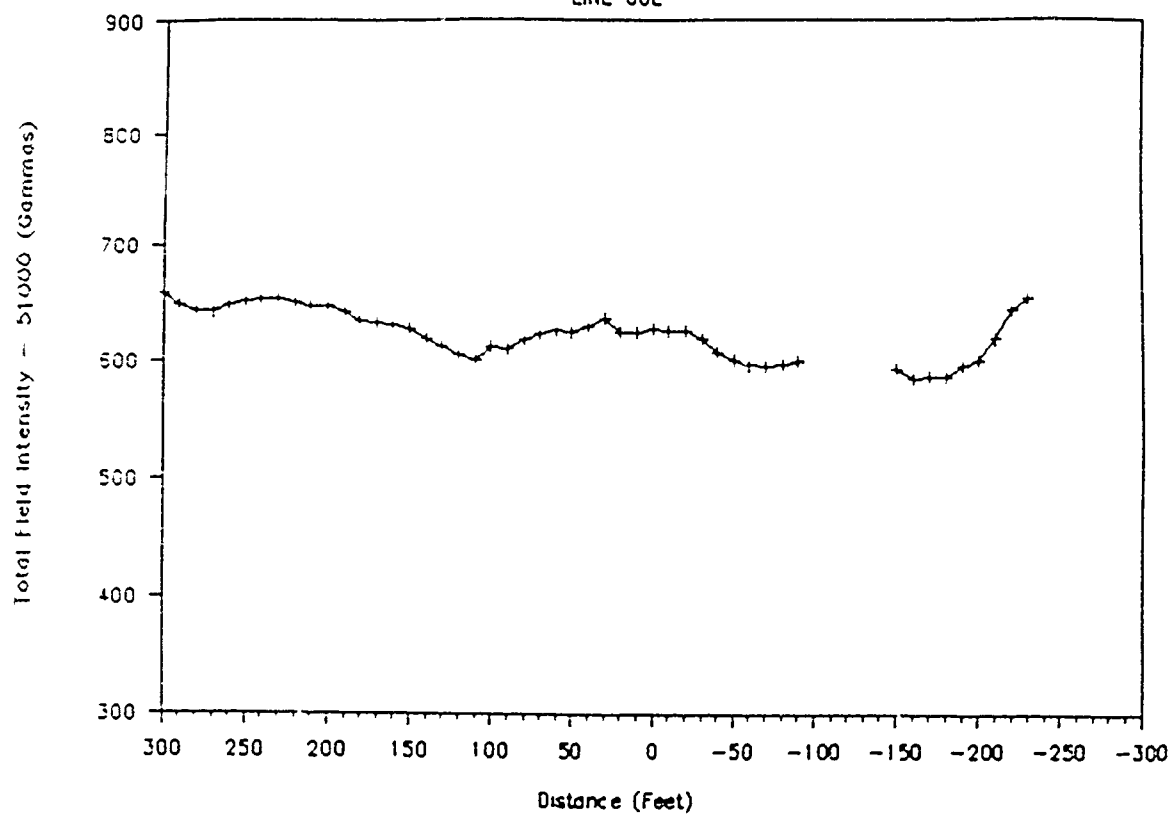
BEST SLOUGH

LINE 40E



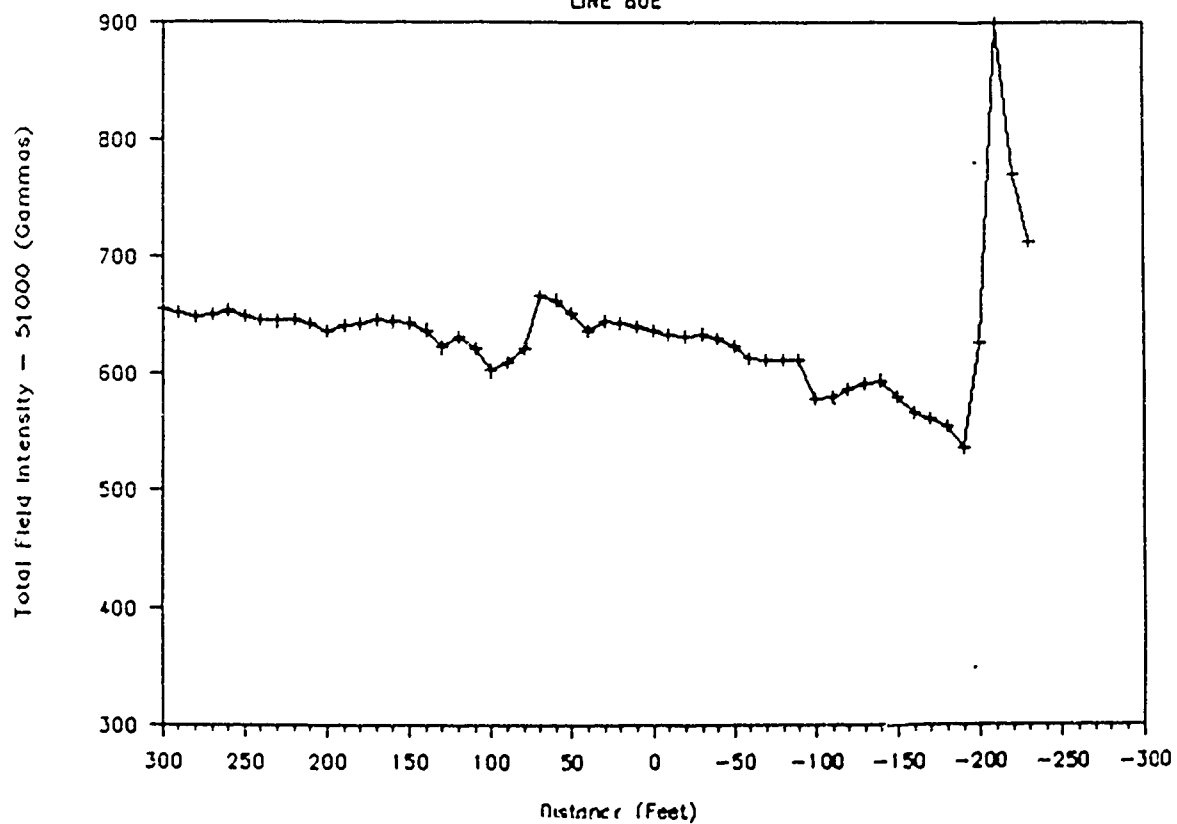
BEST SLOUGH

LINE 60E



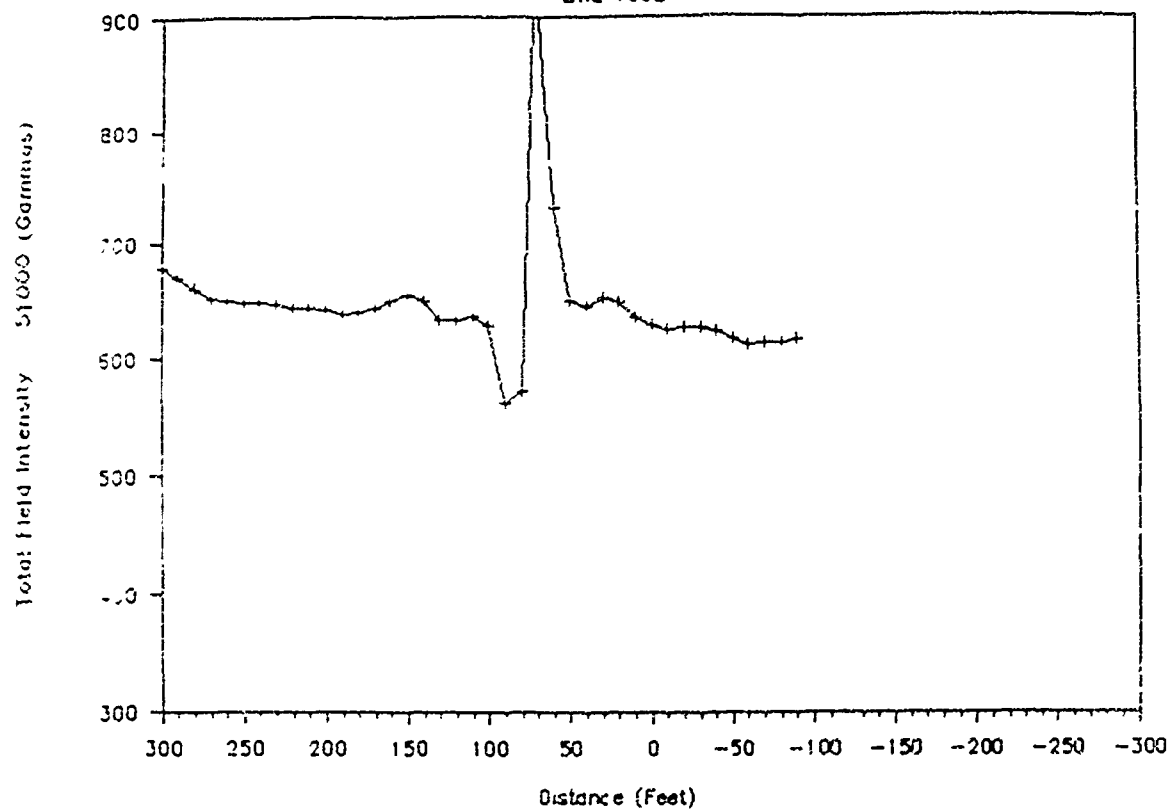
BEST SLOUGH

LINE 80E



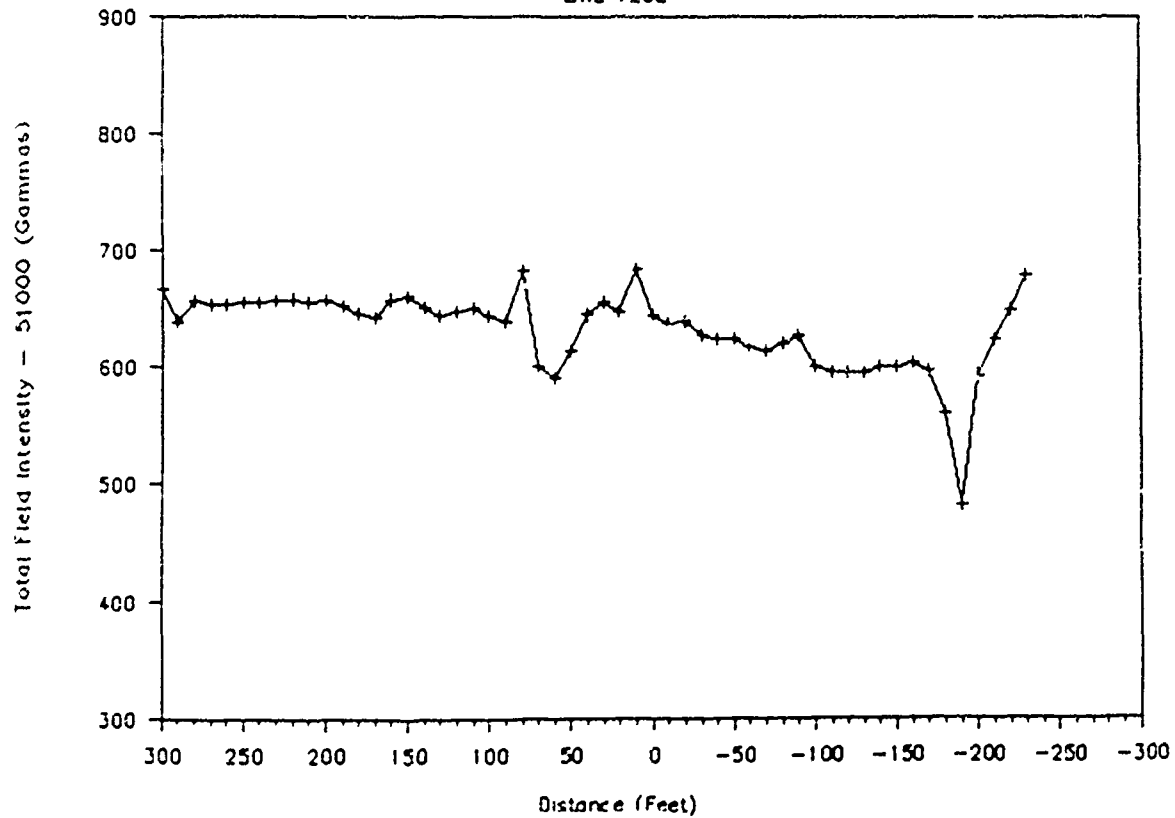
BEST SLOUGH

LINE 100E



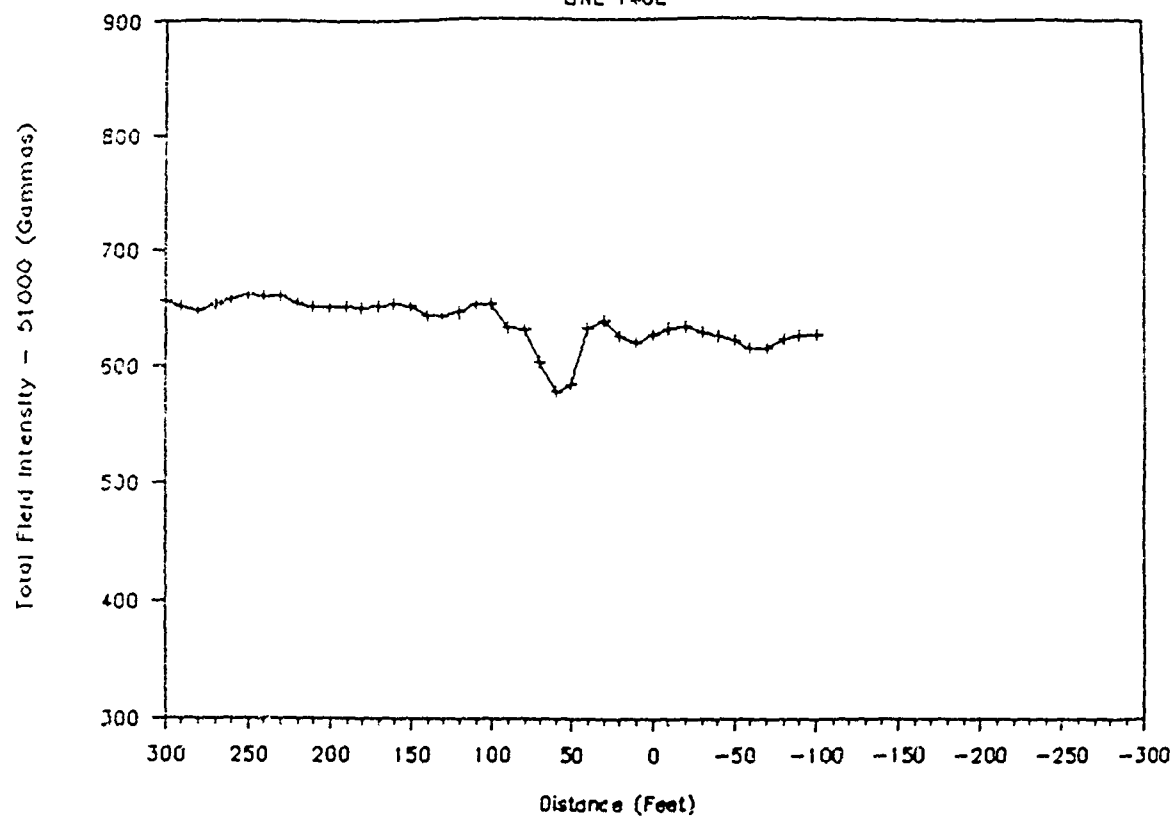
BEST SLOUGH

LINE 120E



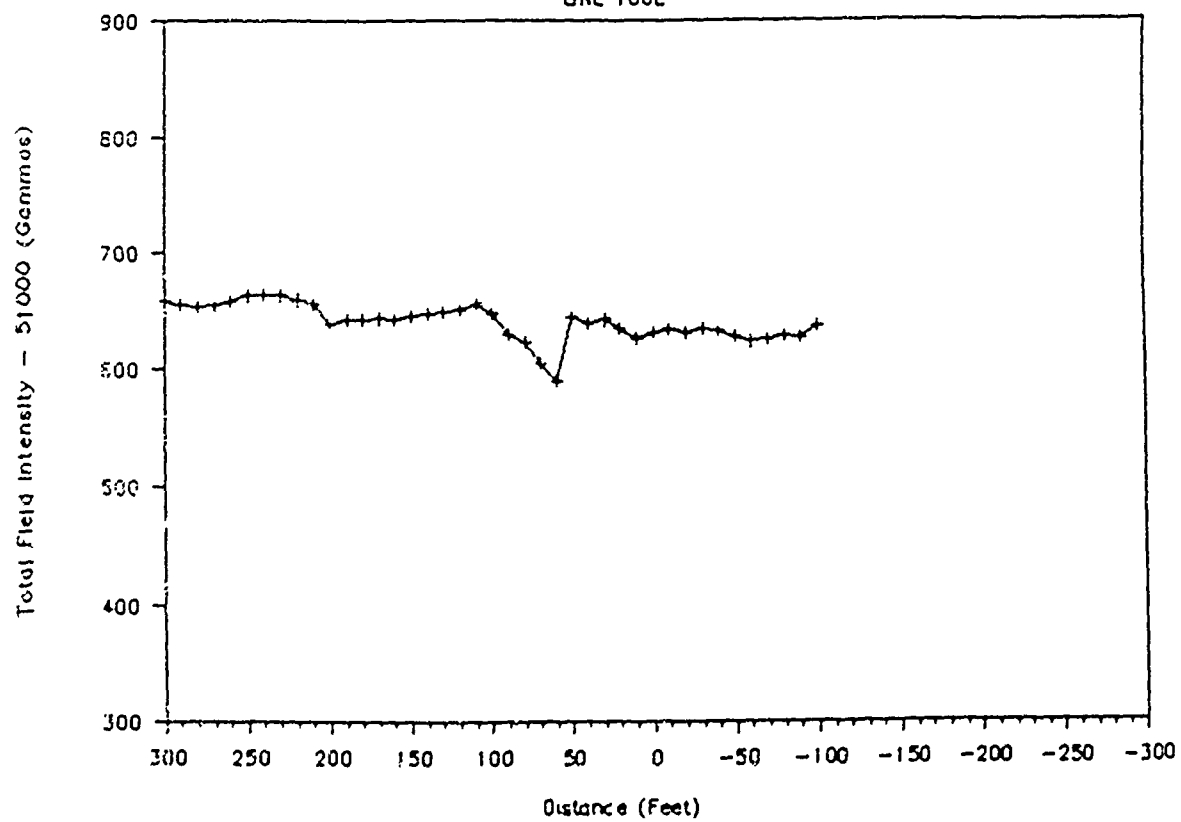
BEST SLOUGH

LINE 140E



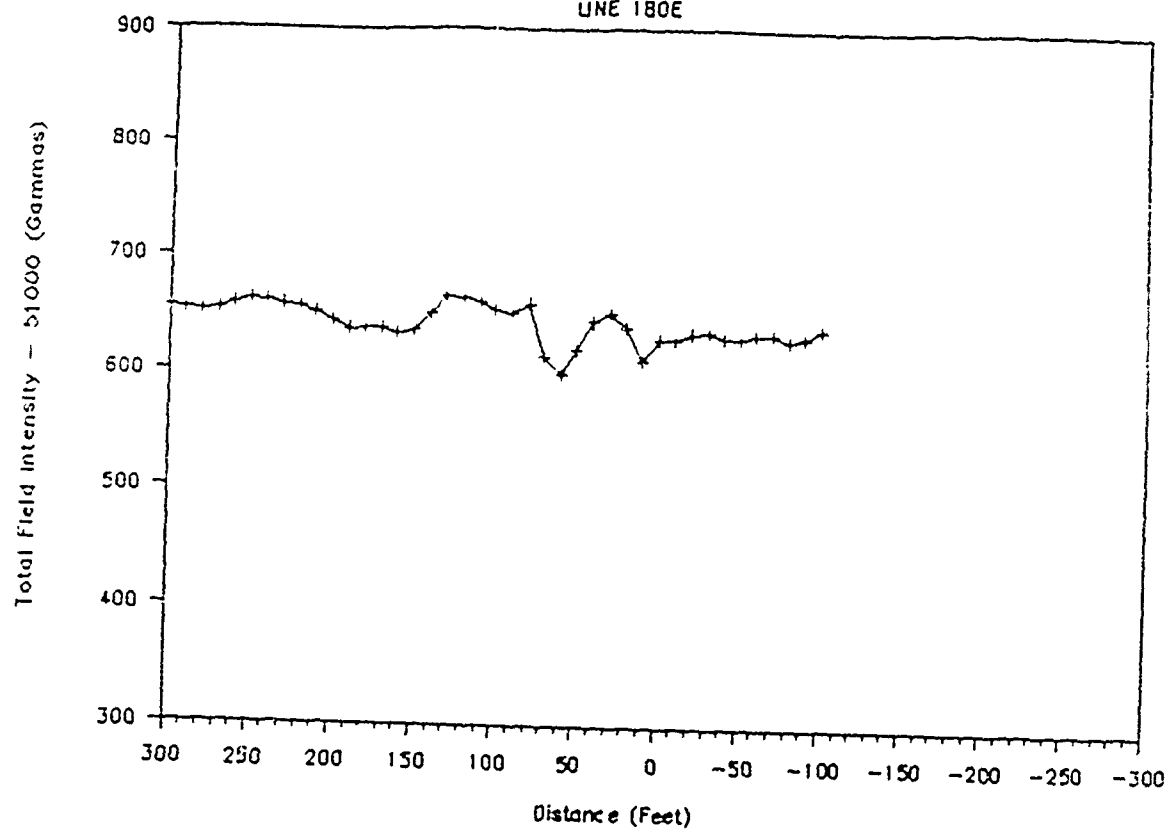
BEST SLOUGH

LINE 160E



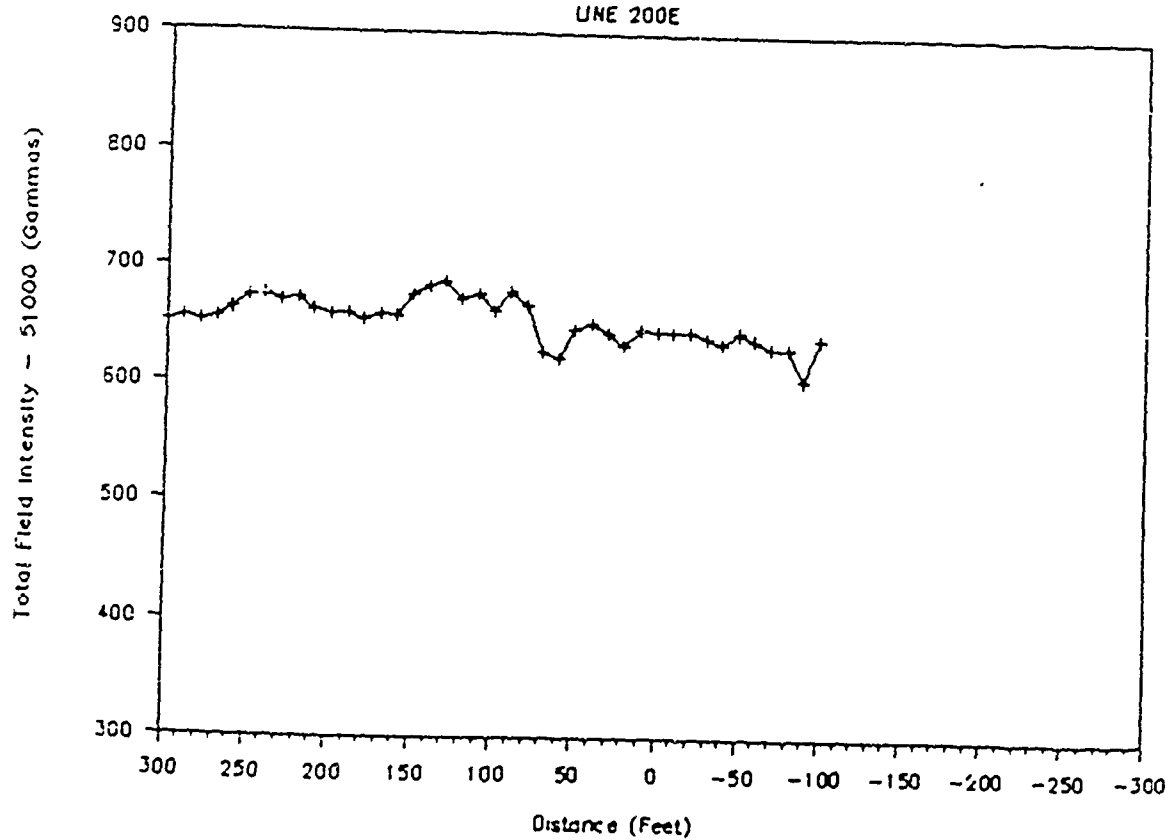
BEST SLOUGH

LINE 180E



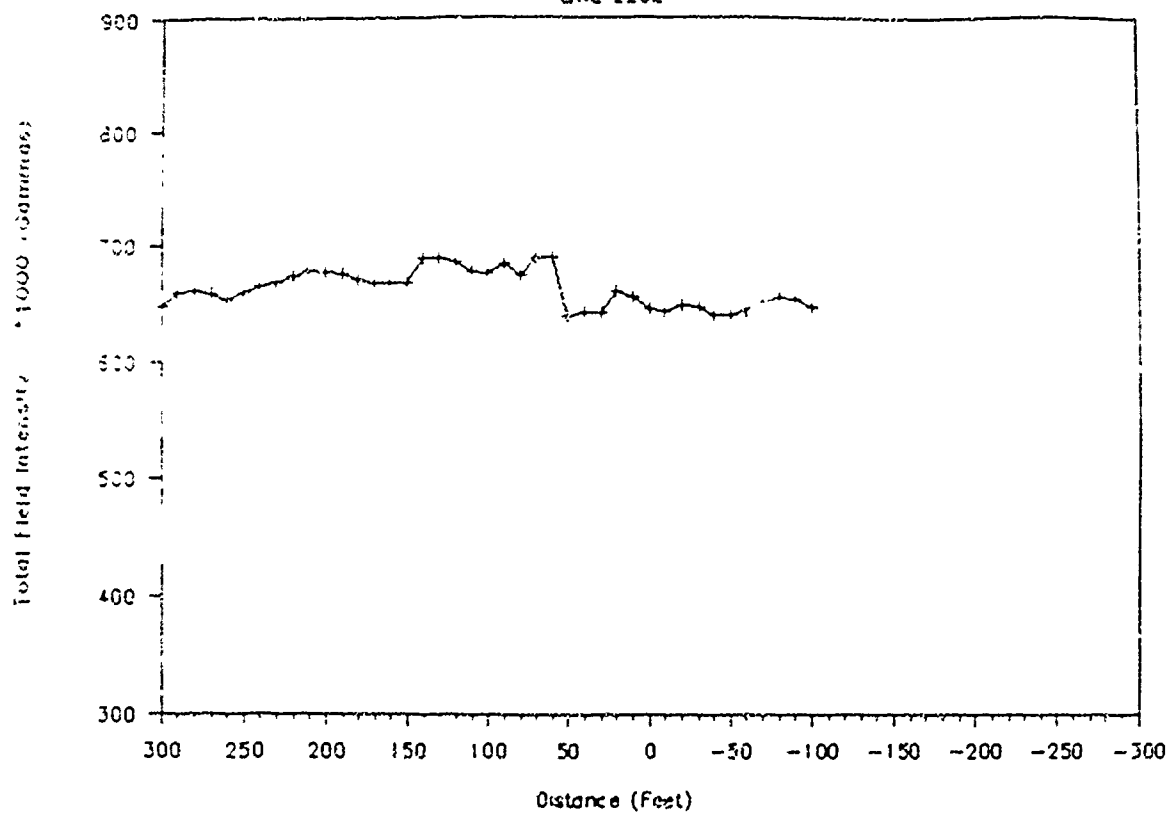
BEST SLOUGH

LINE 200E



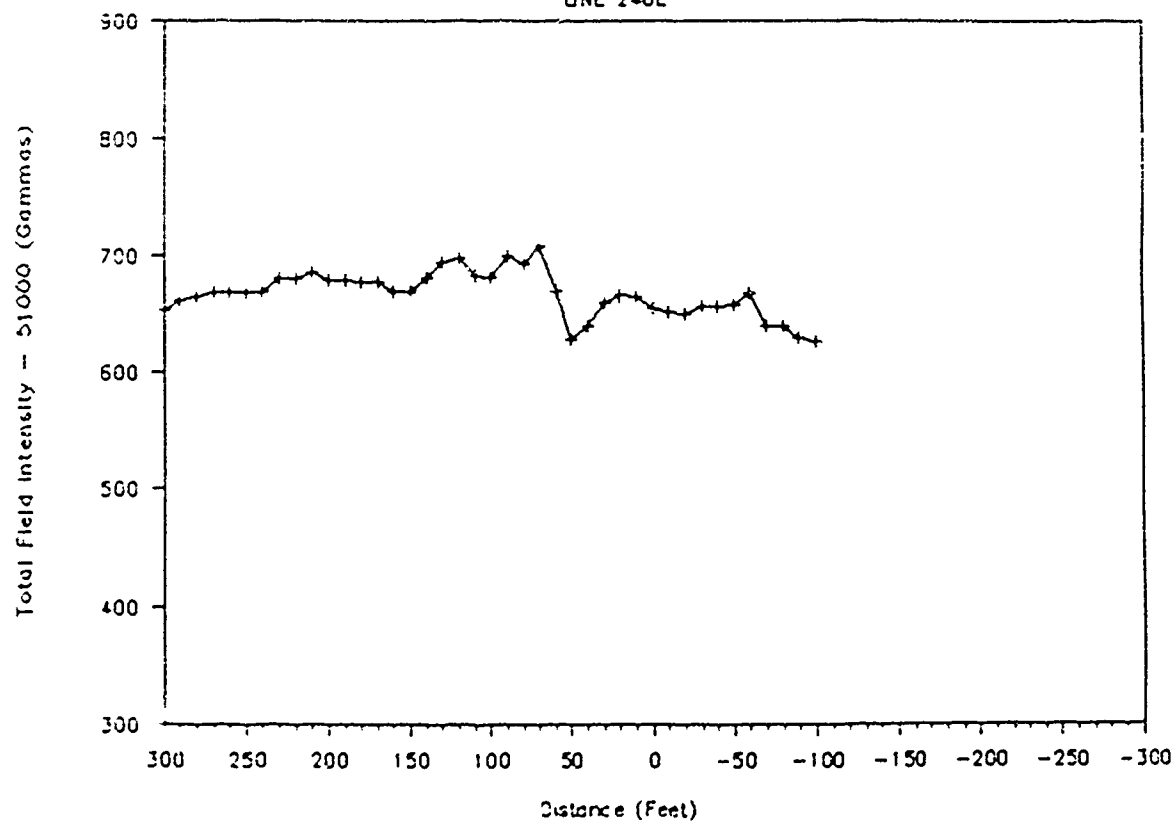
BEST SLOUGH

LINE 220E



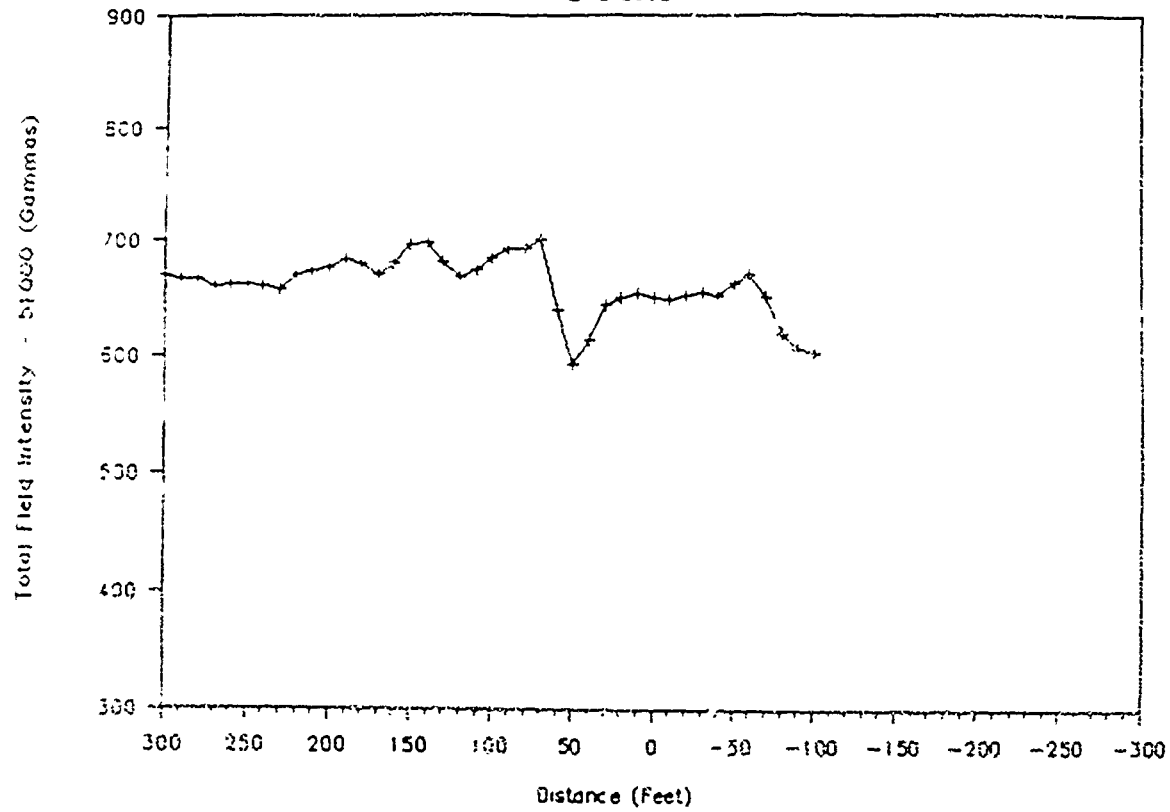
BEST SLOUGH

LINE 240E



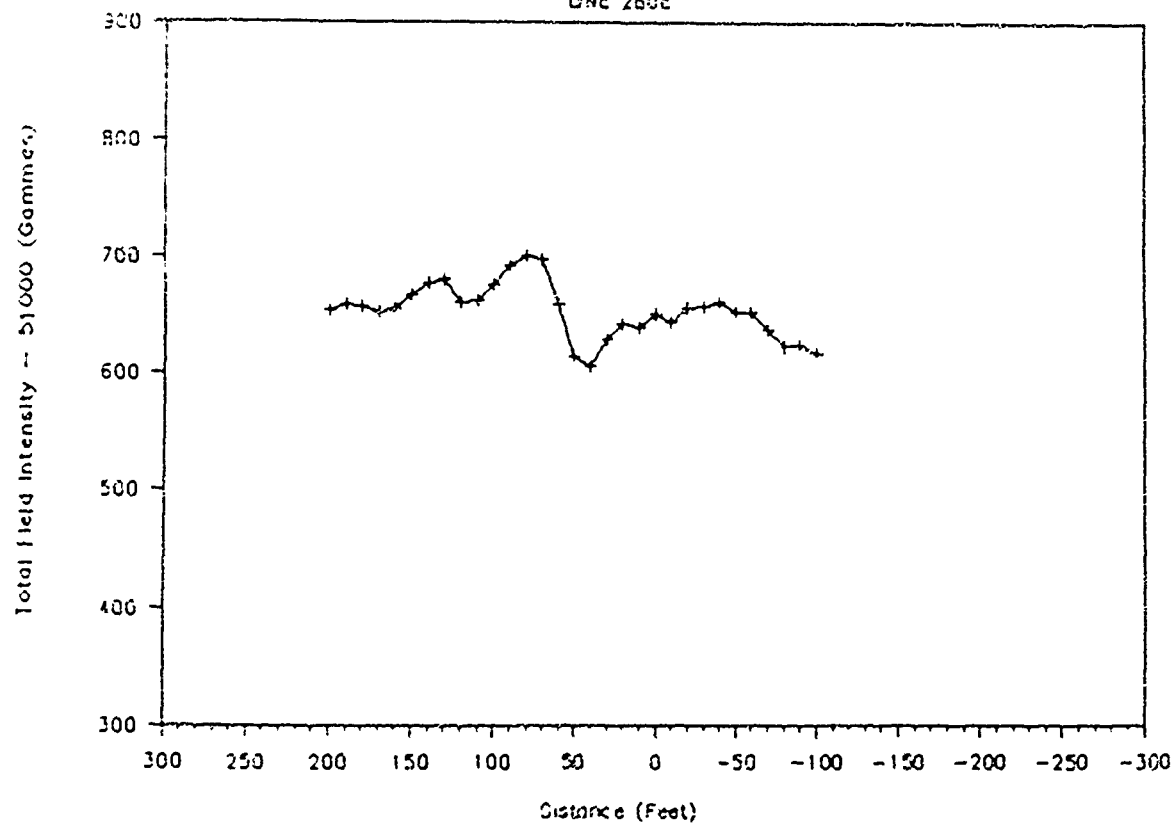
BEST SLOUGH

LINE 250E



BEST SLOUGH

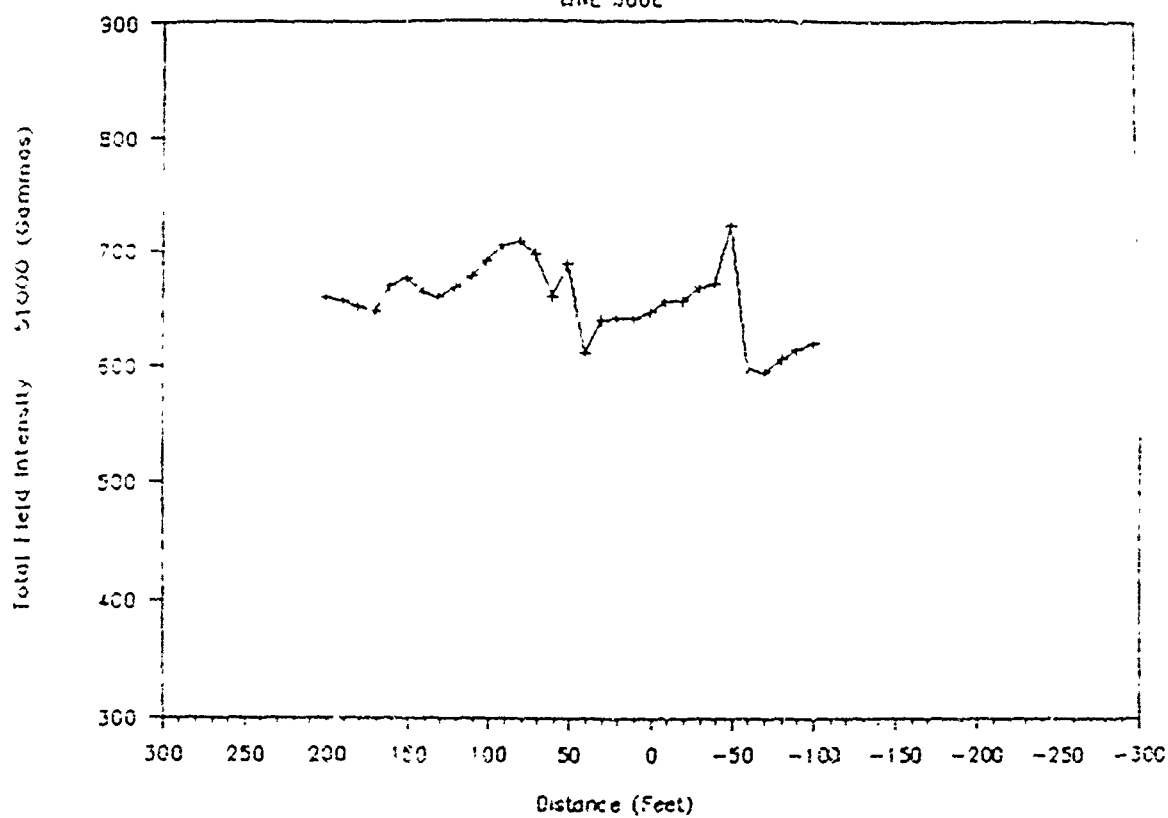
LINE 280E



H-20

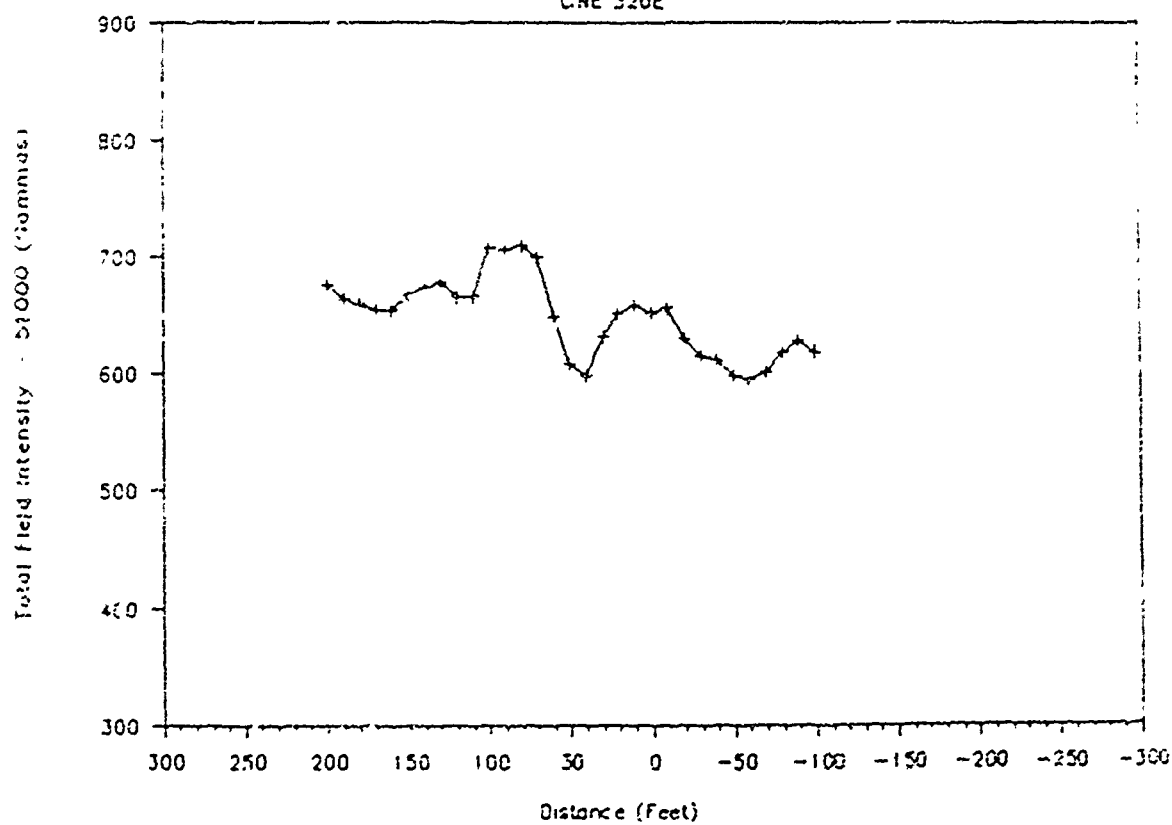
BEST SLOUGH

LINE 300E



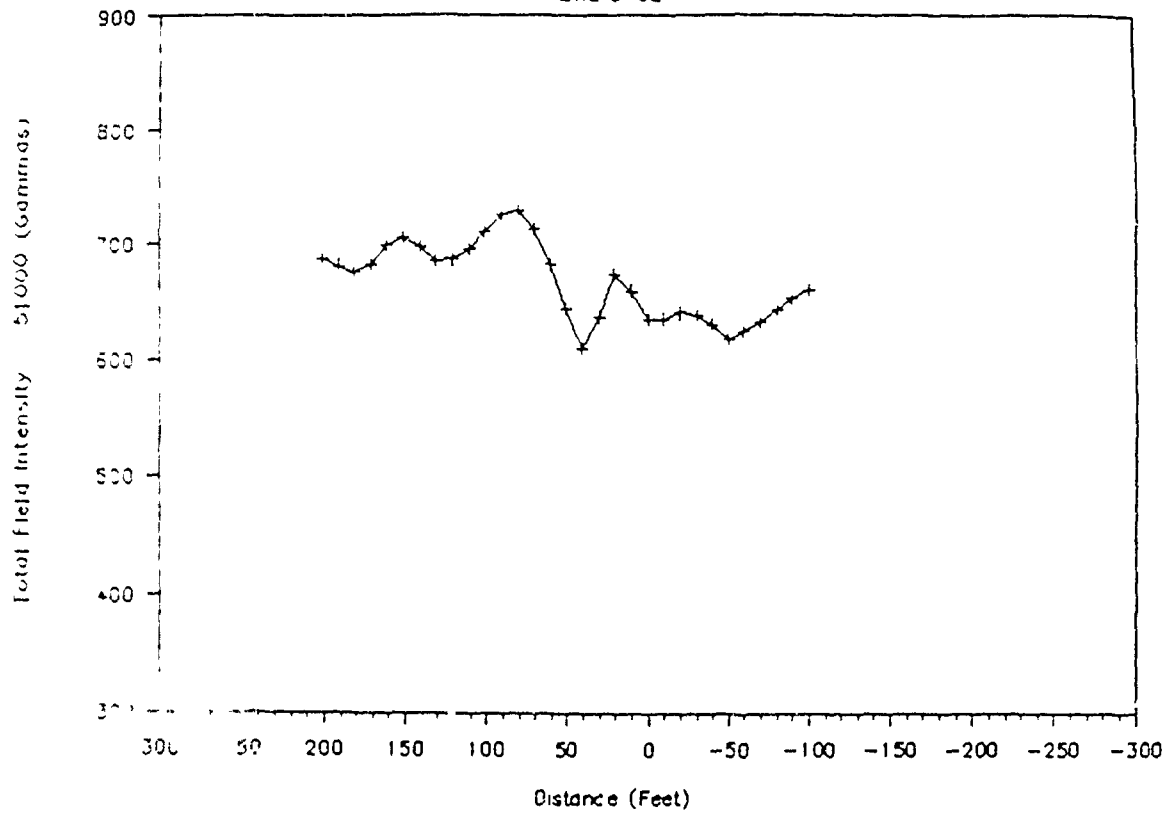
BEST SLOUGH

LINE 320E



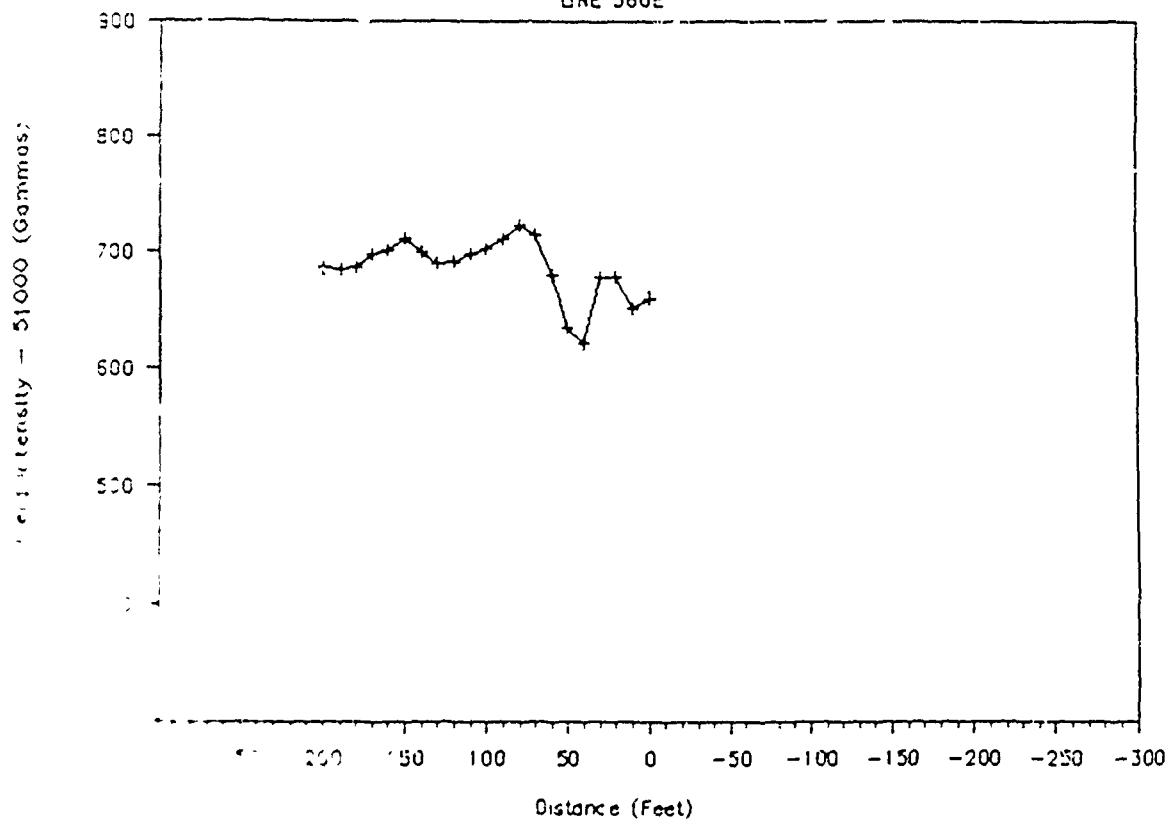
BEST SLOUGH

LINE 340E



BEST SLOUGH

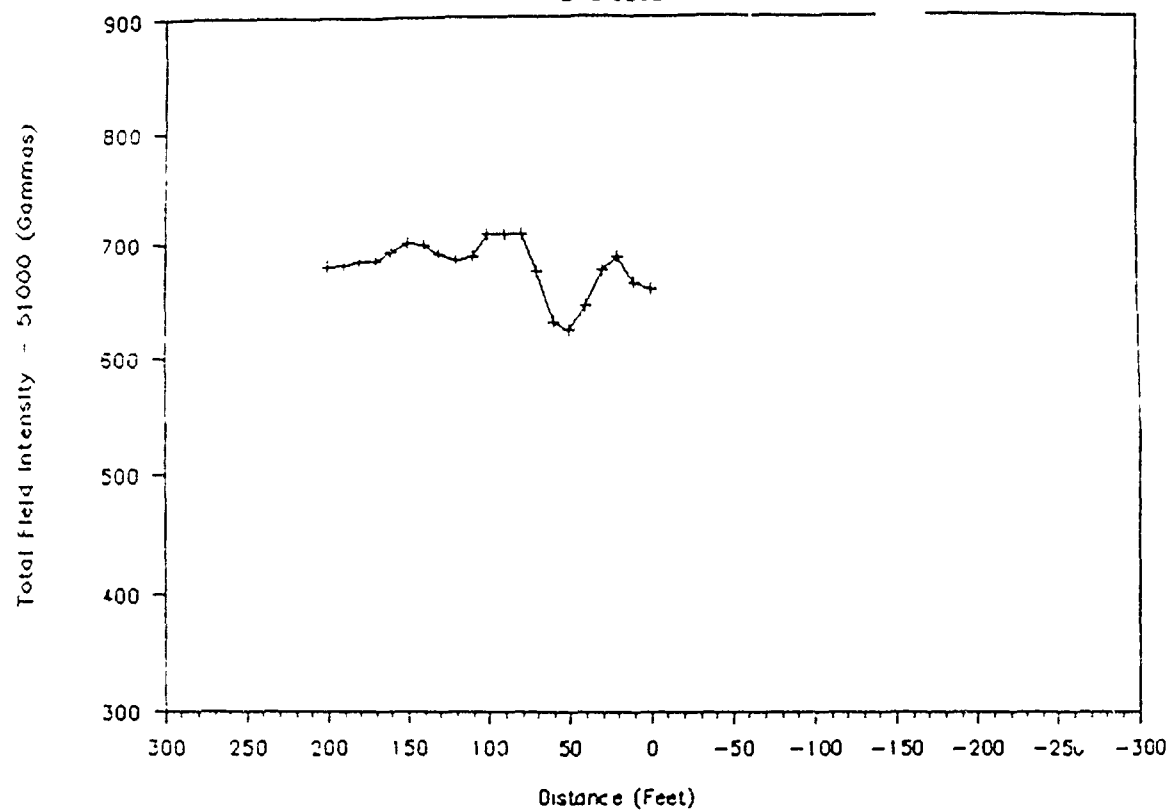
LINE 360E



11-22

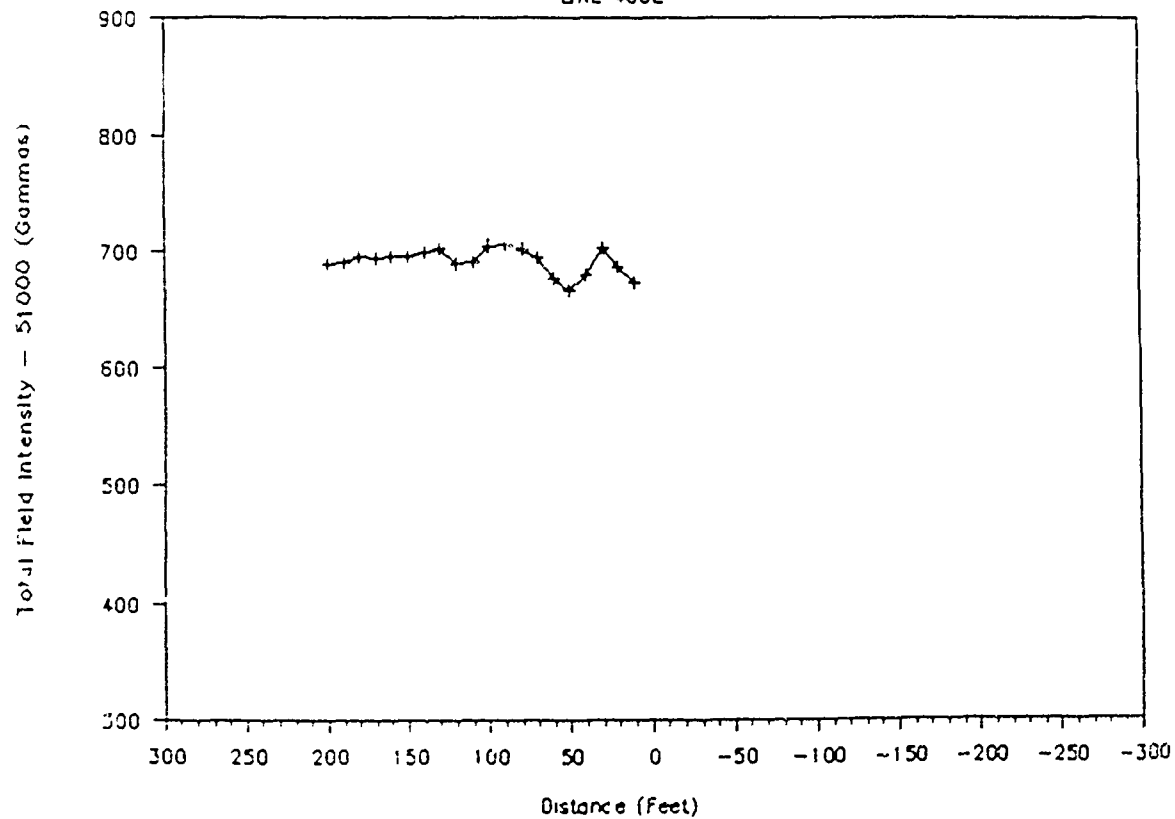
BEST SLOUGH

LINE 380E



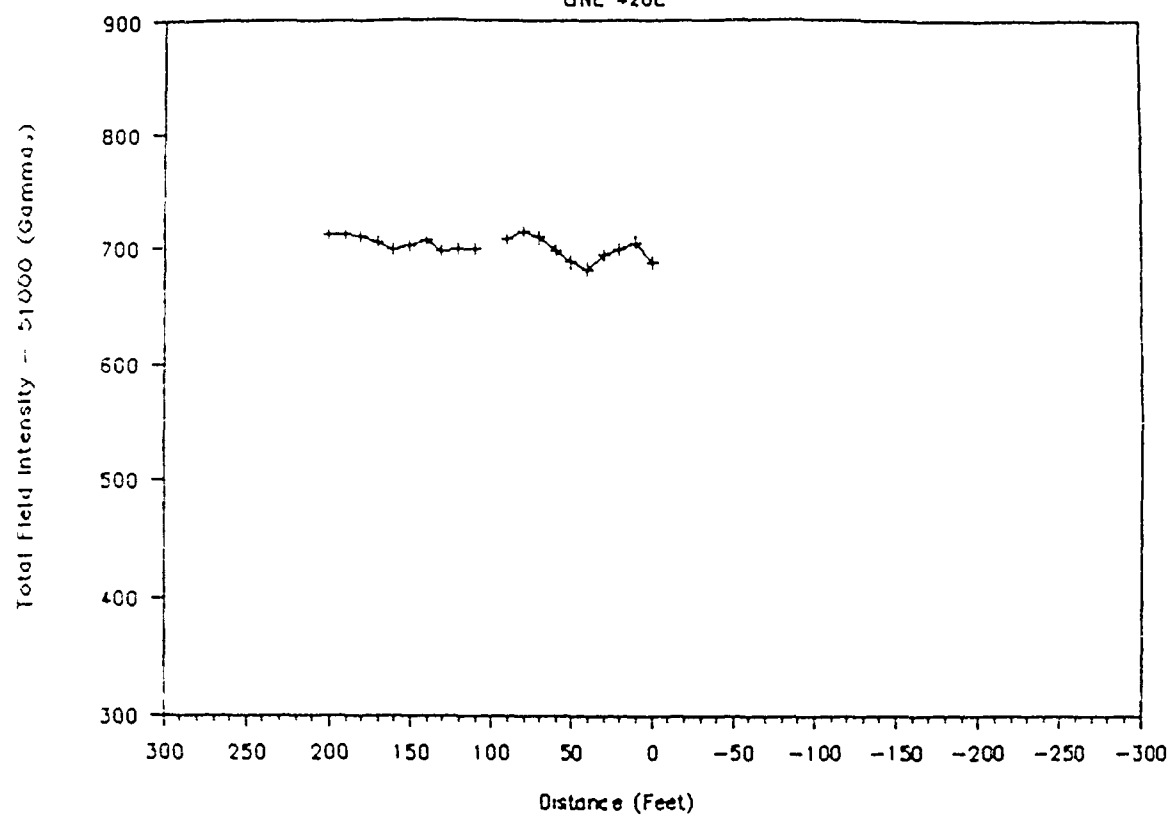
BEST SLOUGH

LINE 400E



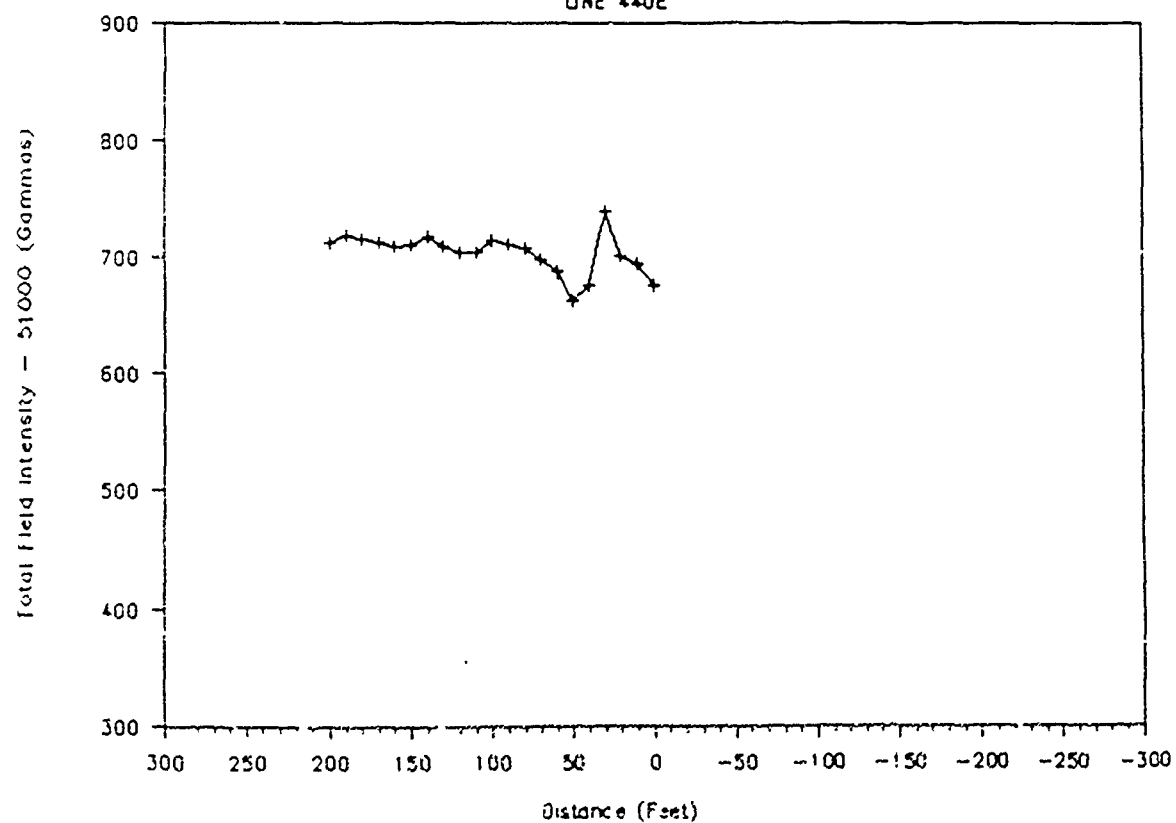
BEST SLOUGH

LINE 420E



BEST SLOUGH

LINE 440E



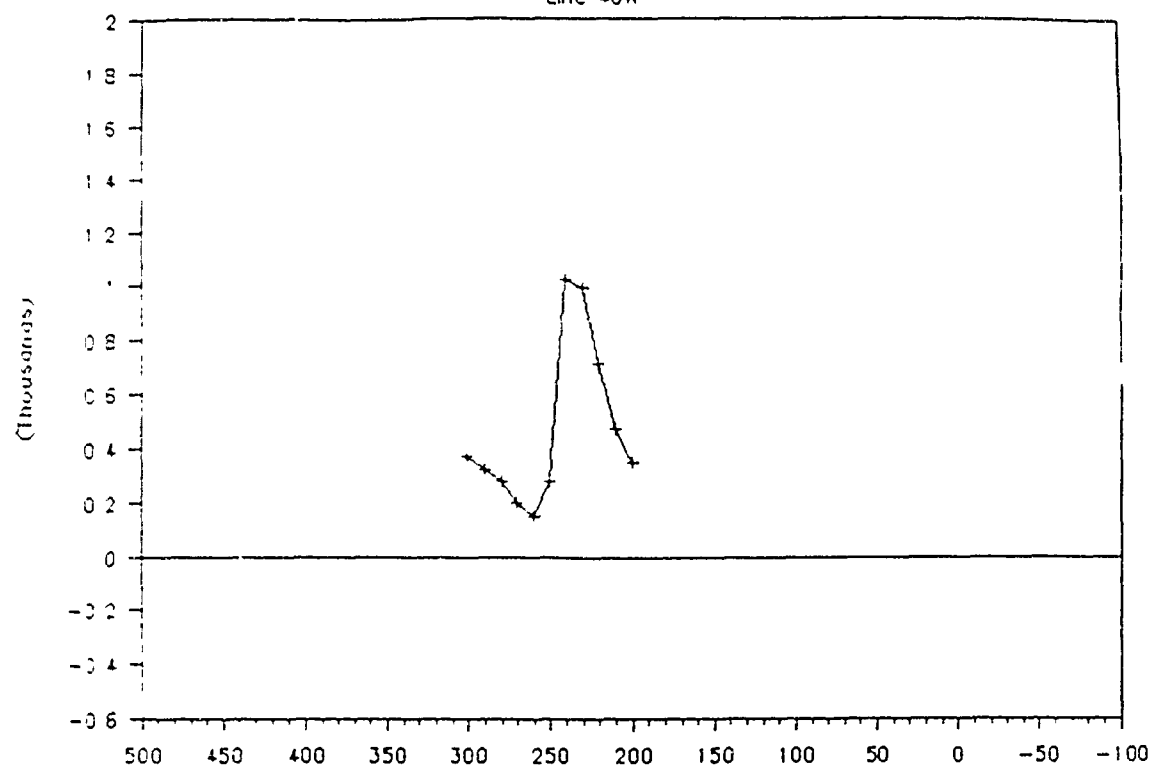
SITE 20

GREASE PIT
(AND LANDFILL NO. 1)

Geophysical Data

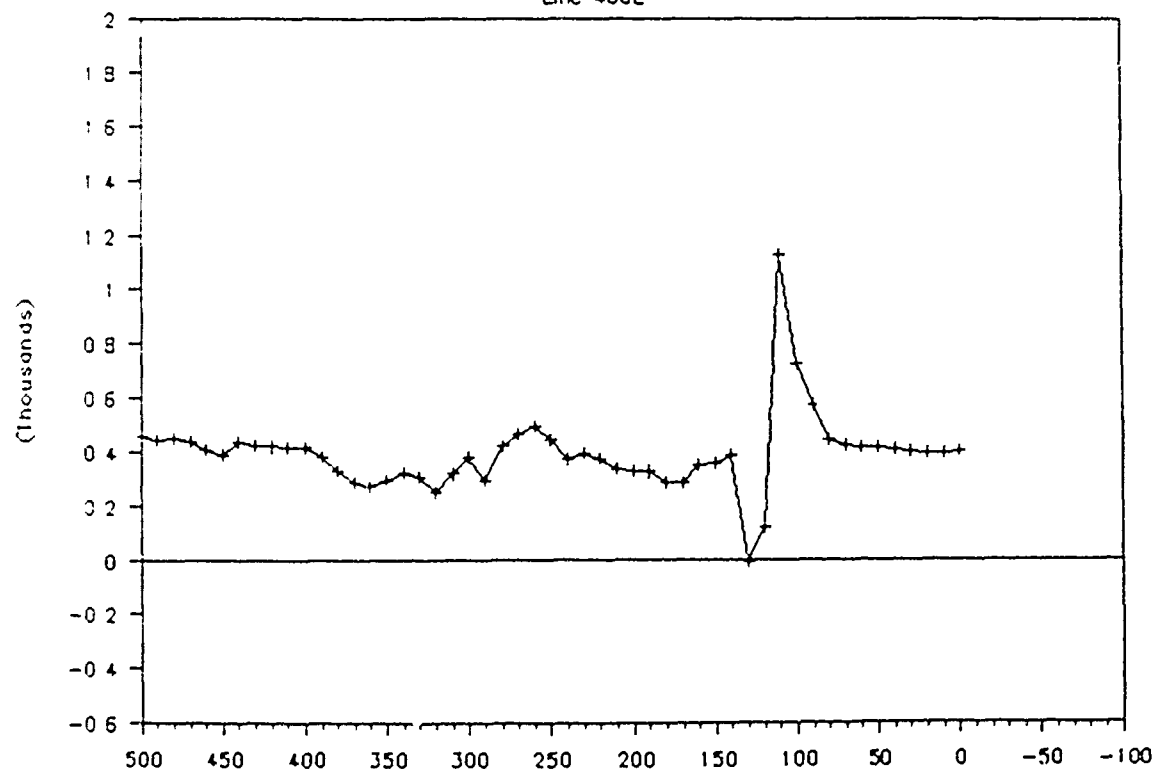
BEALE AFB - Landfill 1

Line 40W



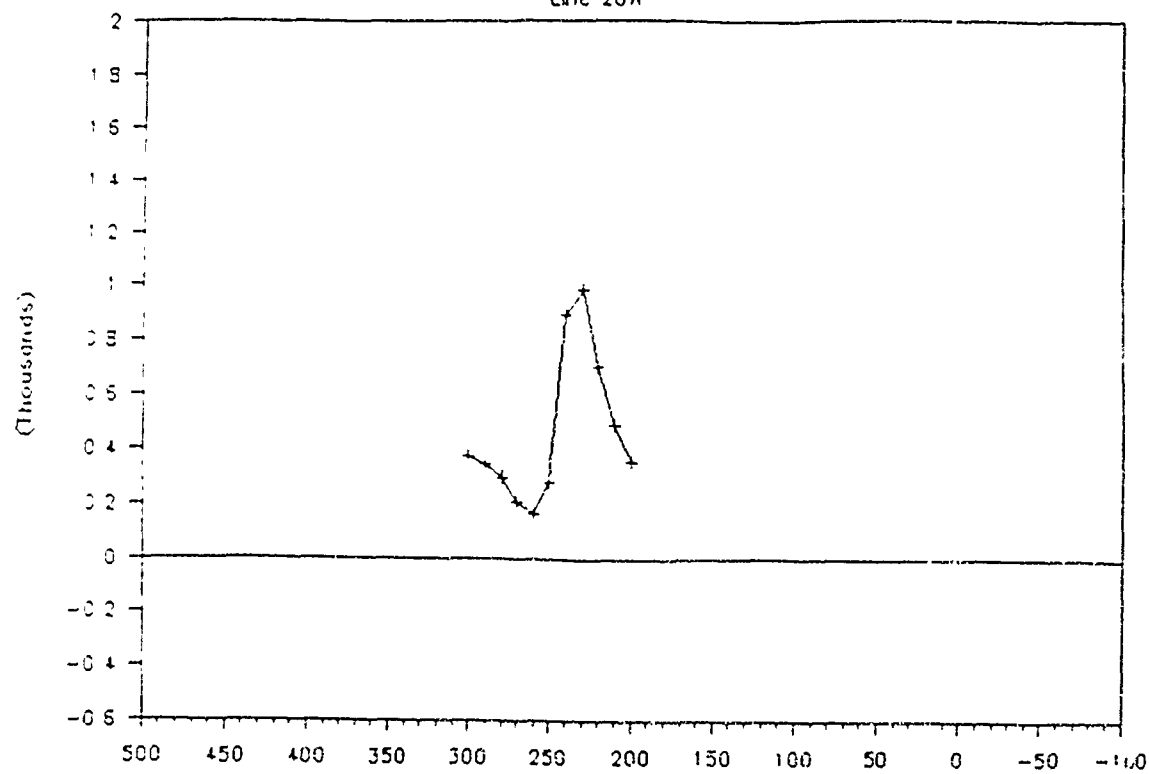
BEALE AFB - Landfill 1

Line 400E



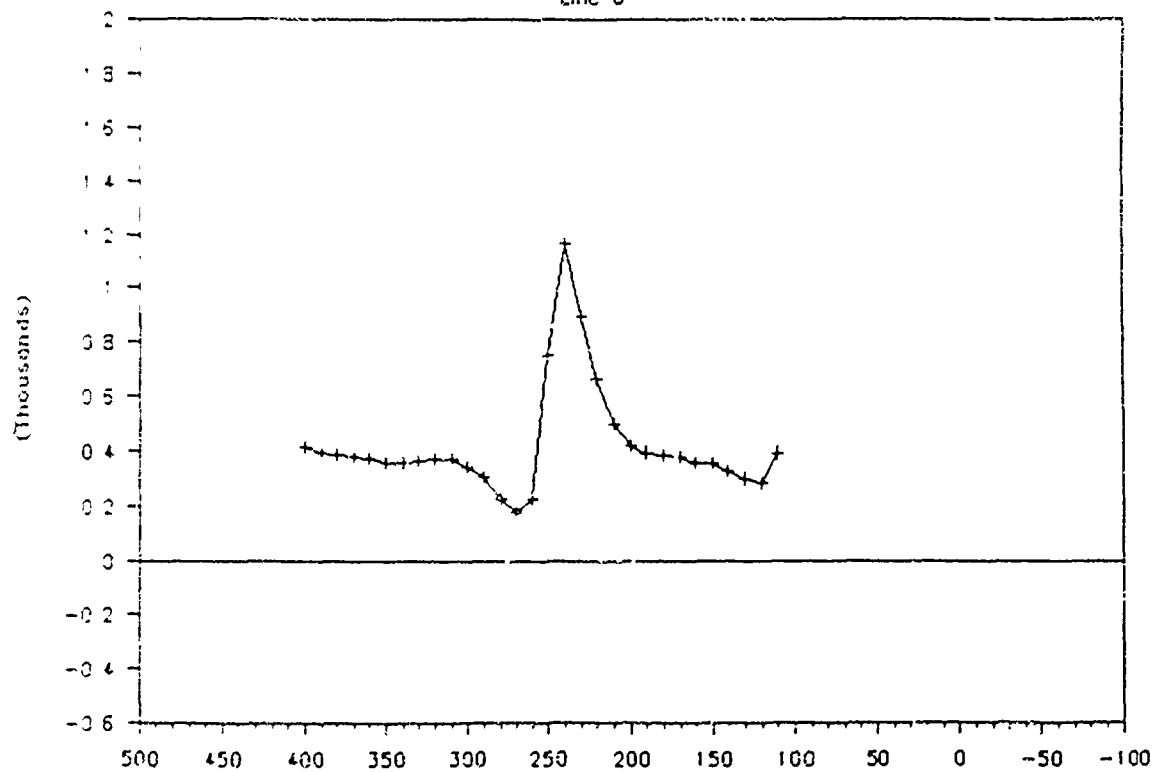
BEALE AFB - Landfill 1

Line 20W



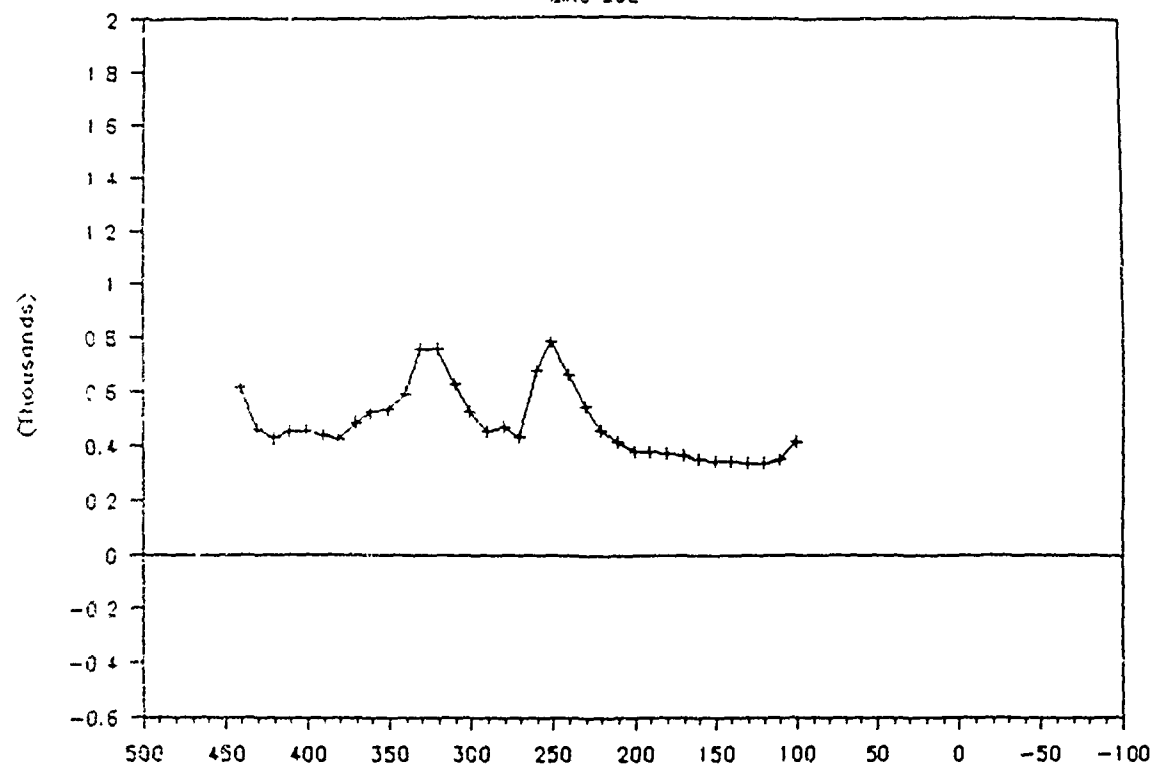
BEALE AFB - Landfill 1

Line 0



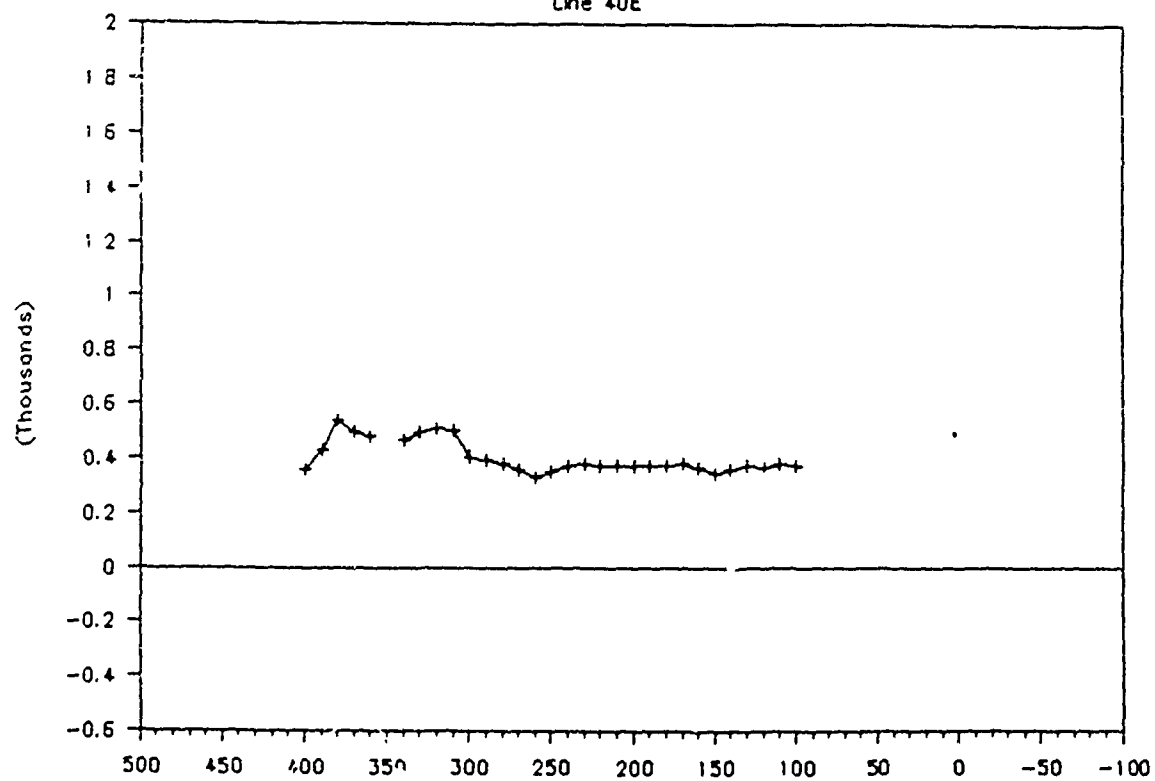
BEALE AFB - Landfill 1

Line 20E



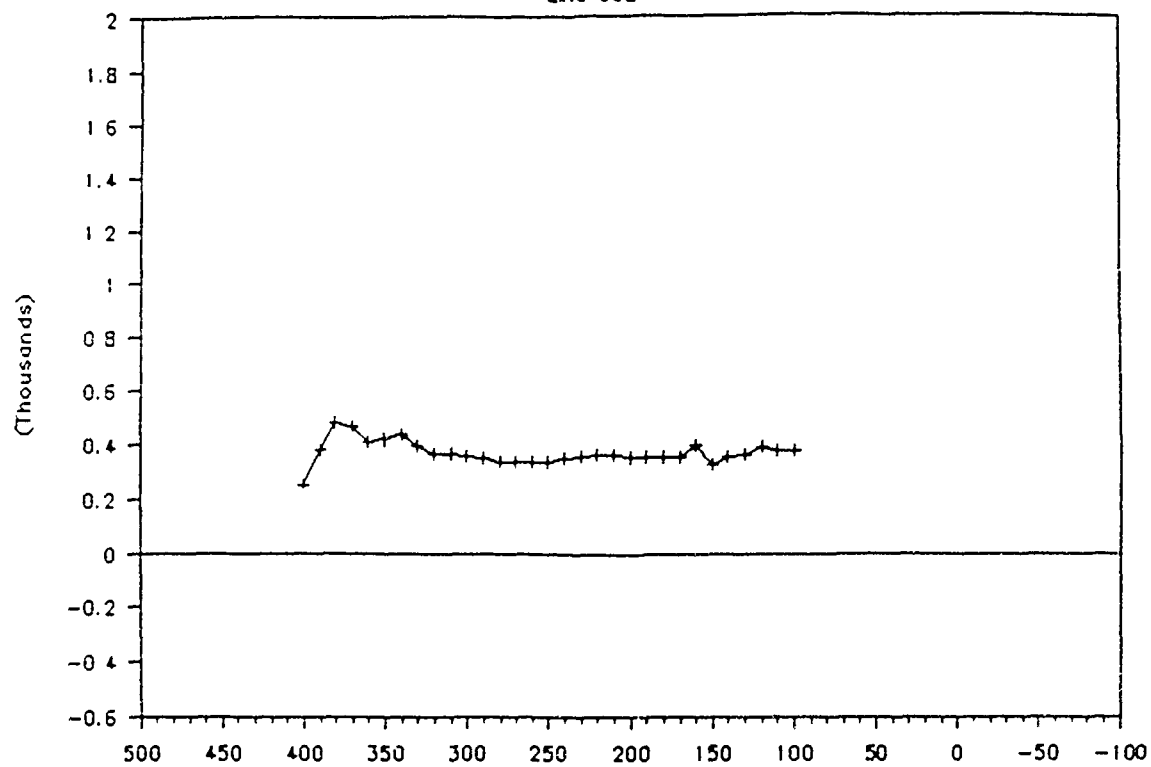
BEALE AFB - Landfill 1

Line 40E



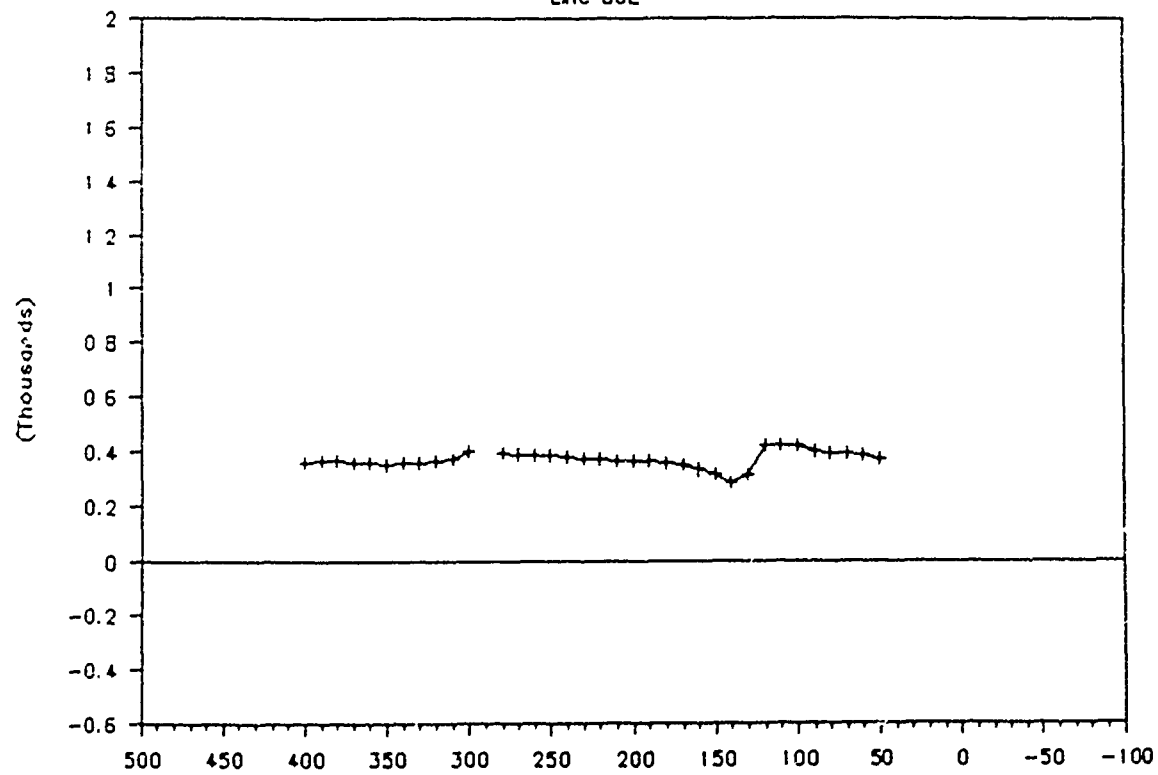
BEALE AFB - Landfill 1

Line 60E



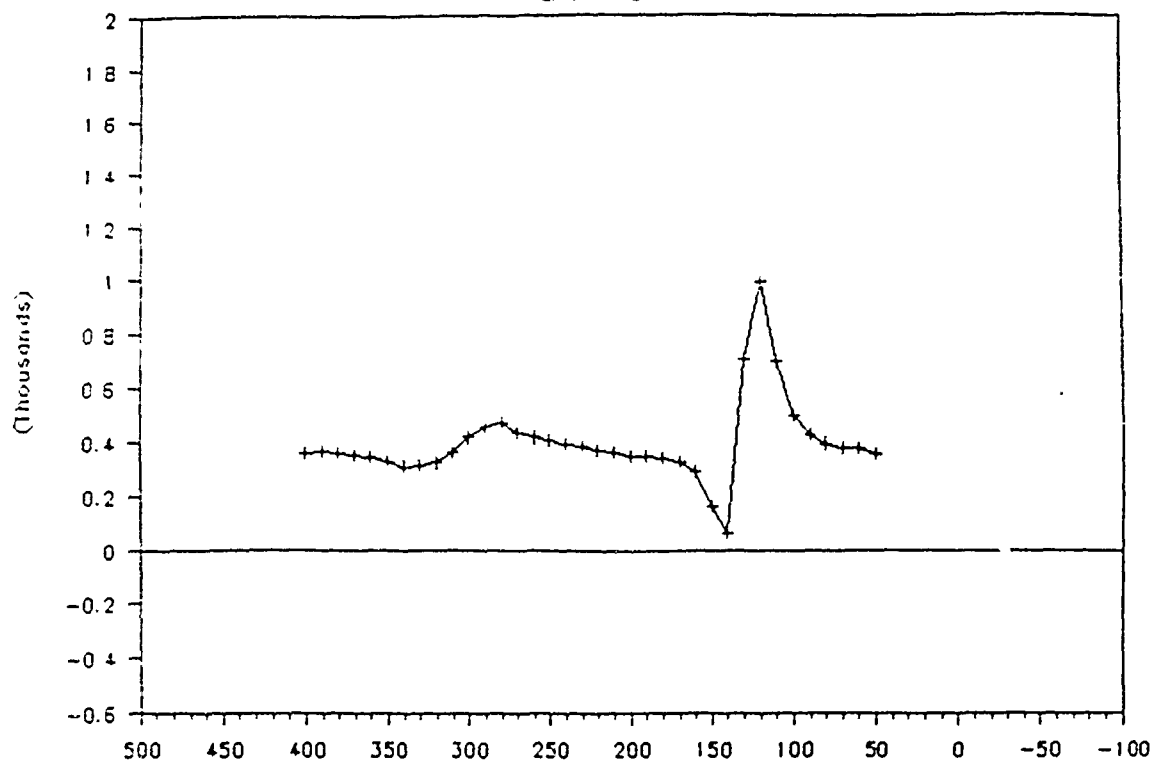
BEALE AFB - Landfill 1

Line 80E



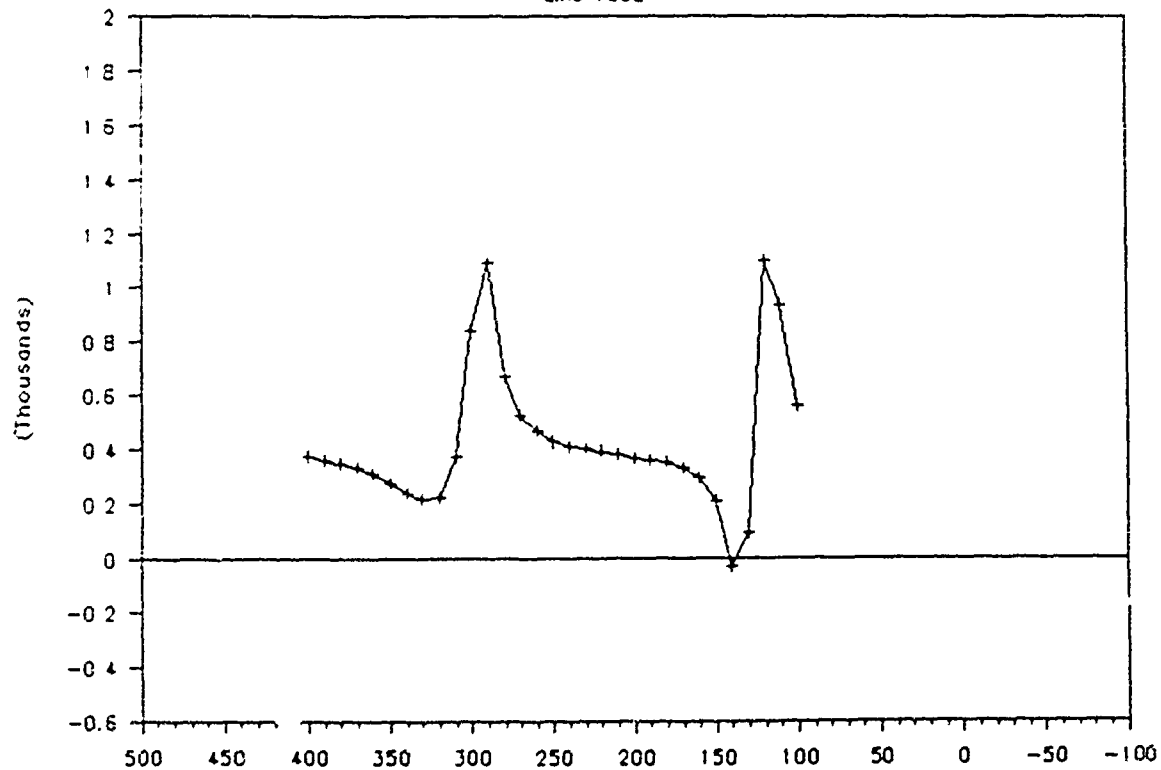
BEALE AFB - Landfill 1

Line 100E



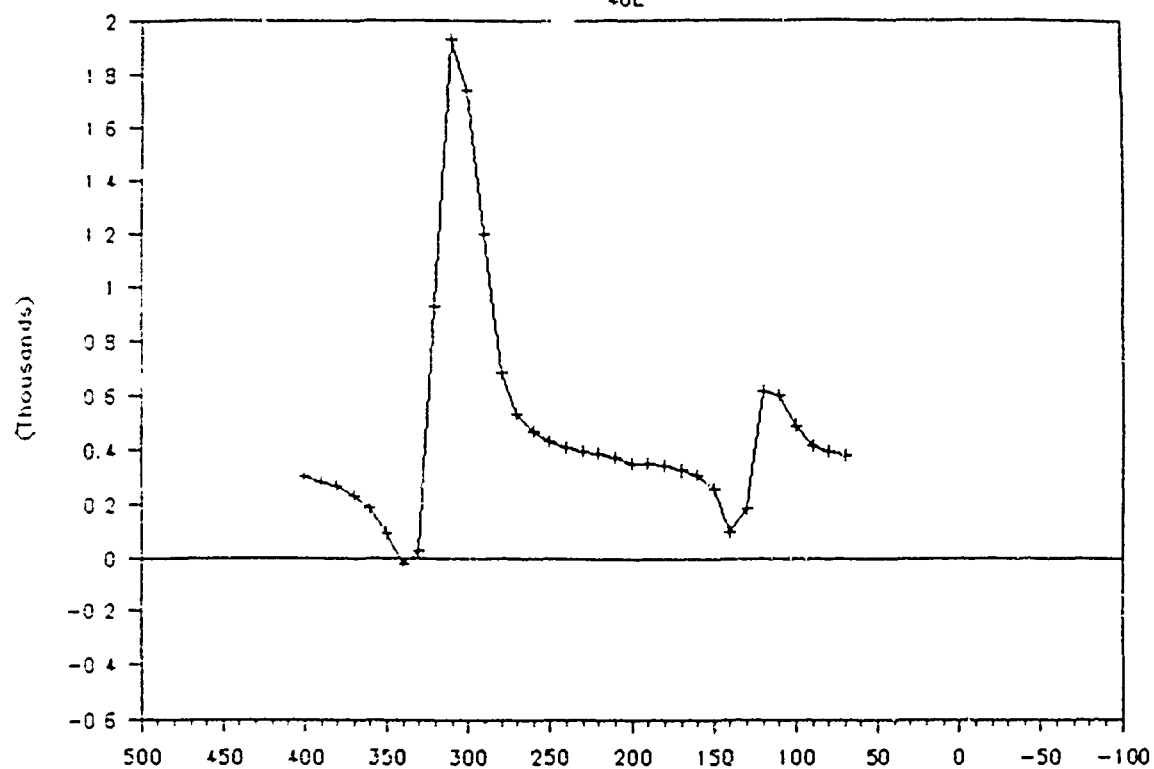
BEALE AFB - Landfill 1

Line 120E



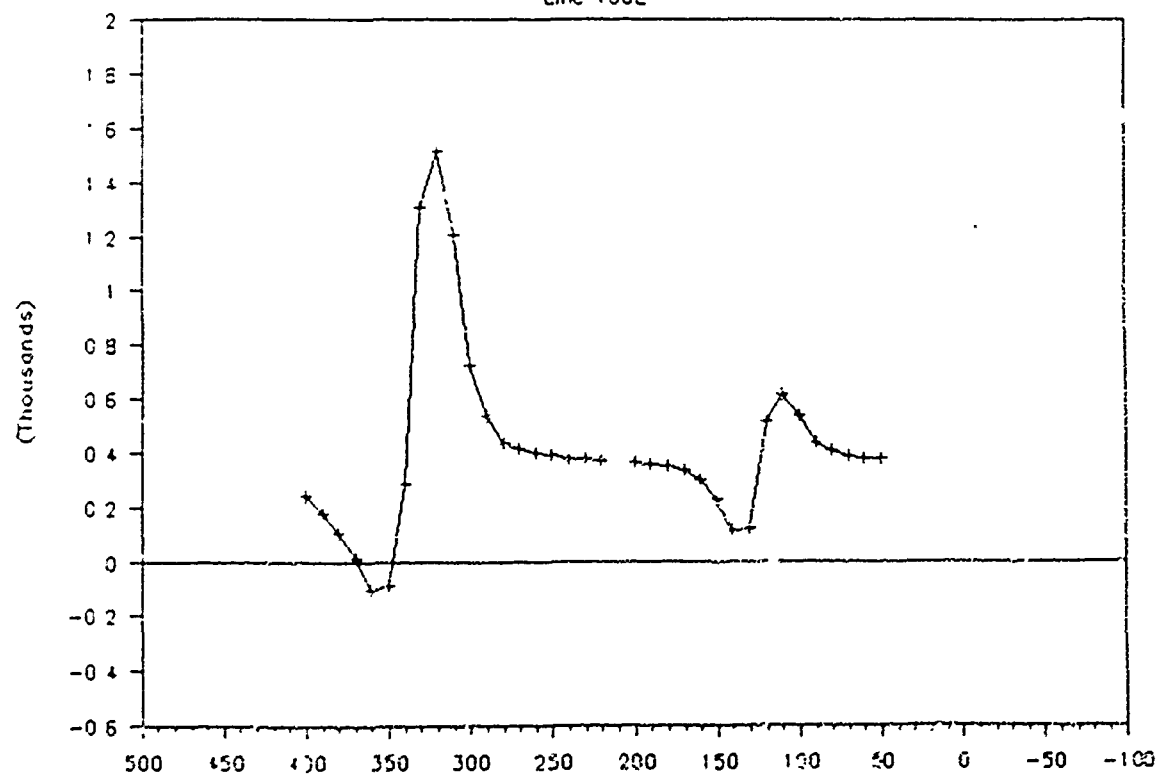
BEALE AFB - Landfill 1

40E



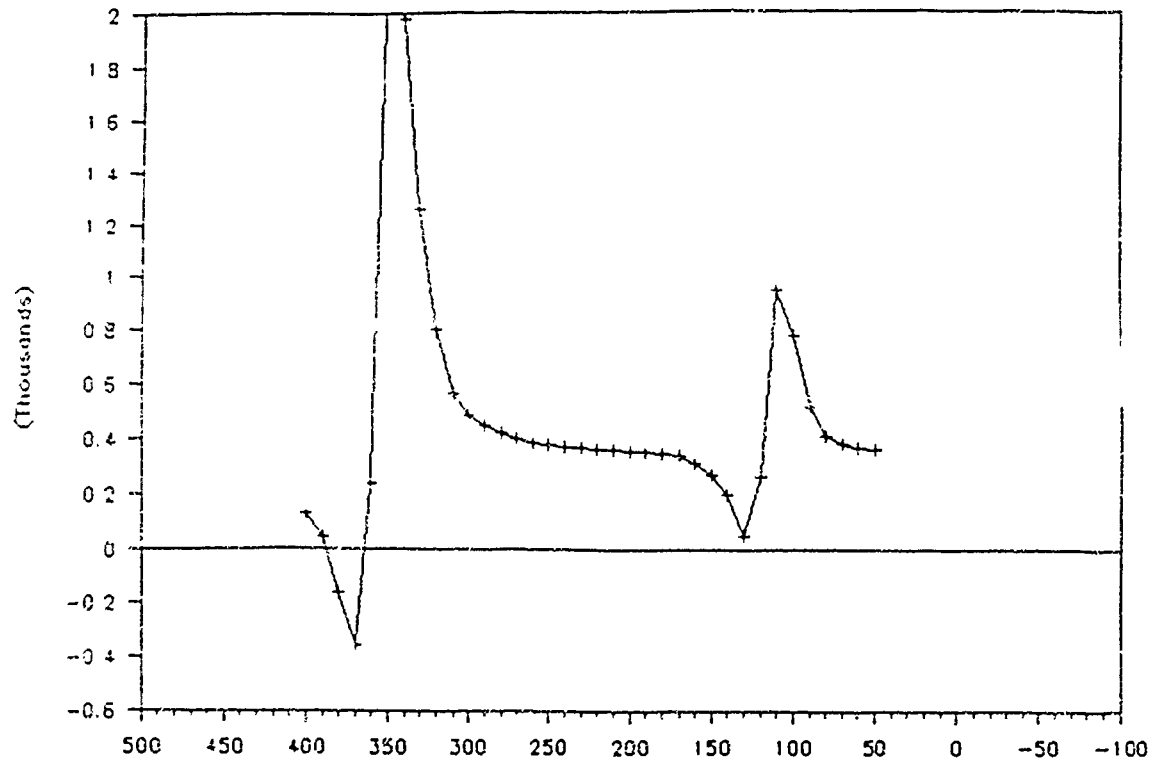
BEALE AFB - Landfill 1

Line 160E



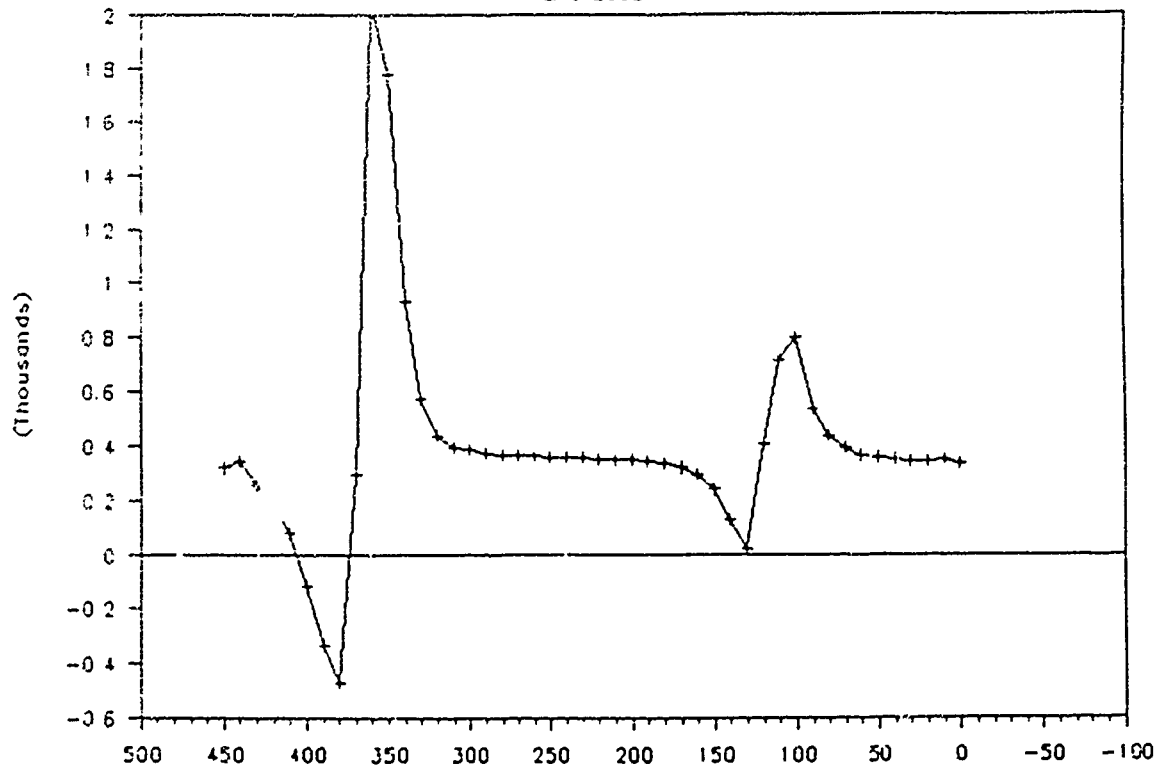
BEALE AFB - Landfill 1

Line 180E



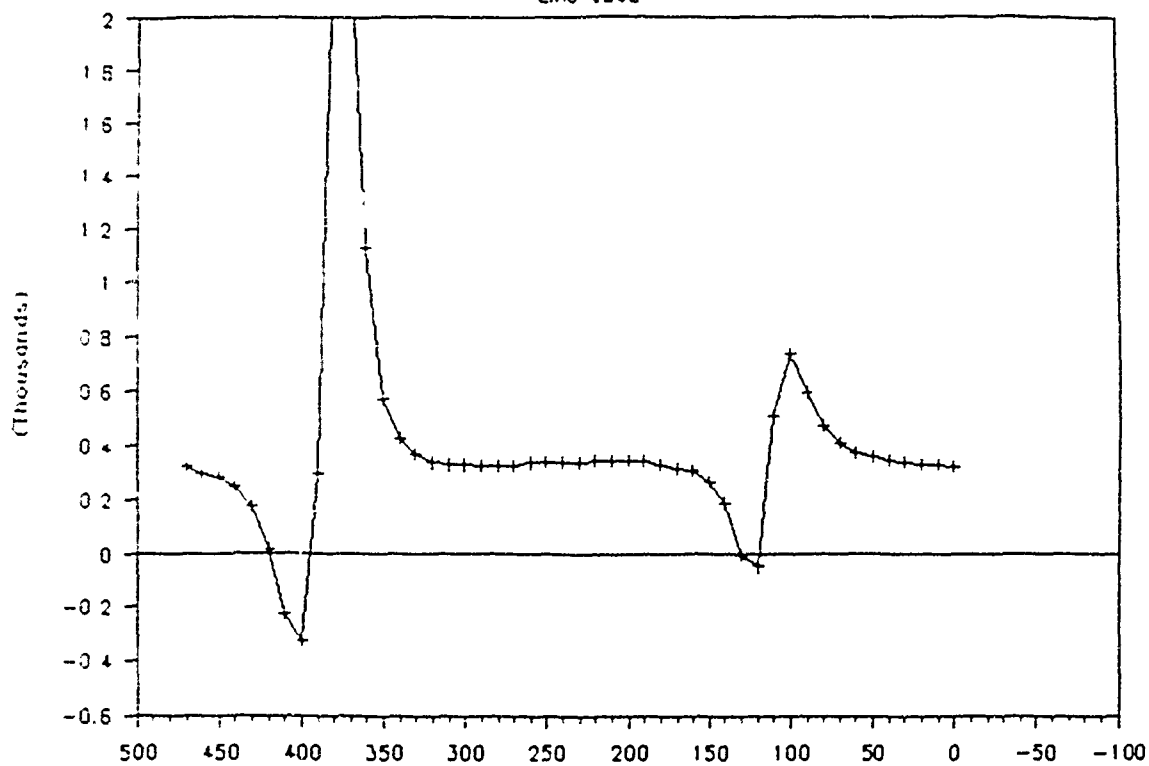
BEALE AFB - Landfill 1

Line 200E



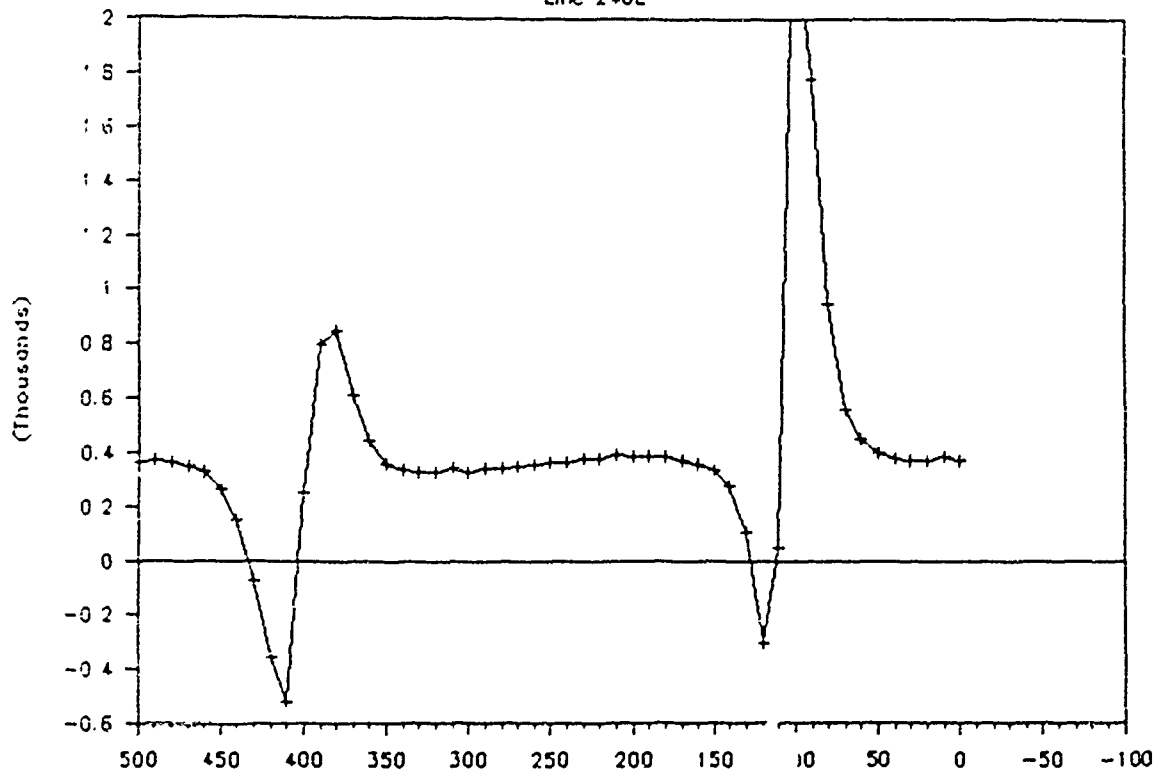
BEALE AFB - Landfill 1

Line 220E



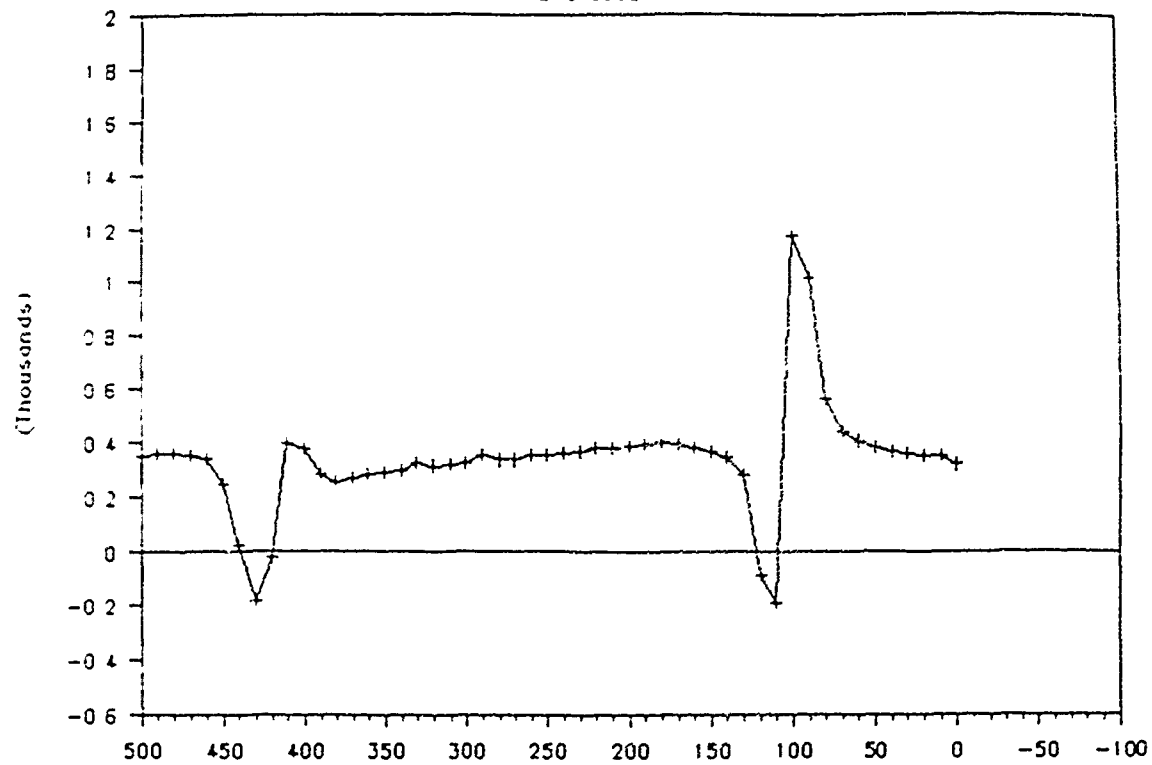
BEALE AFB - Landfill 1

Line 240E



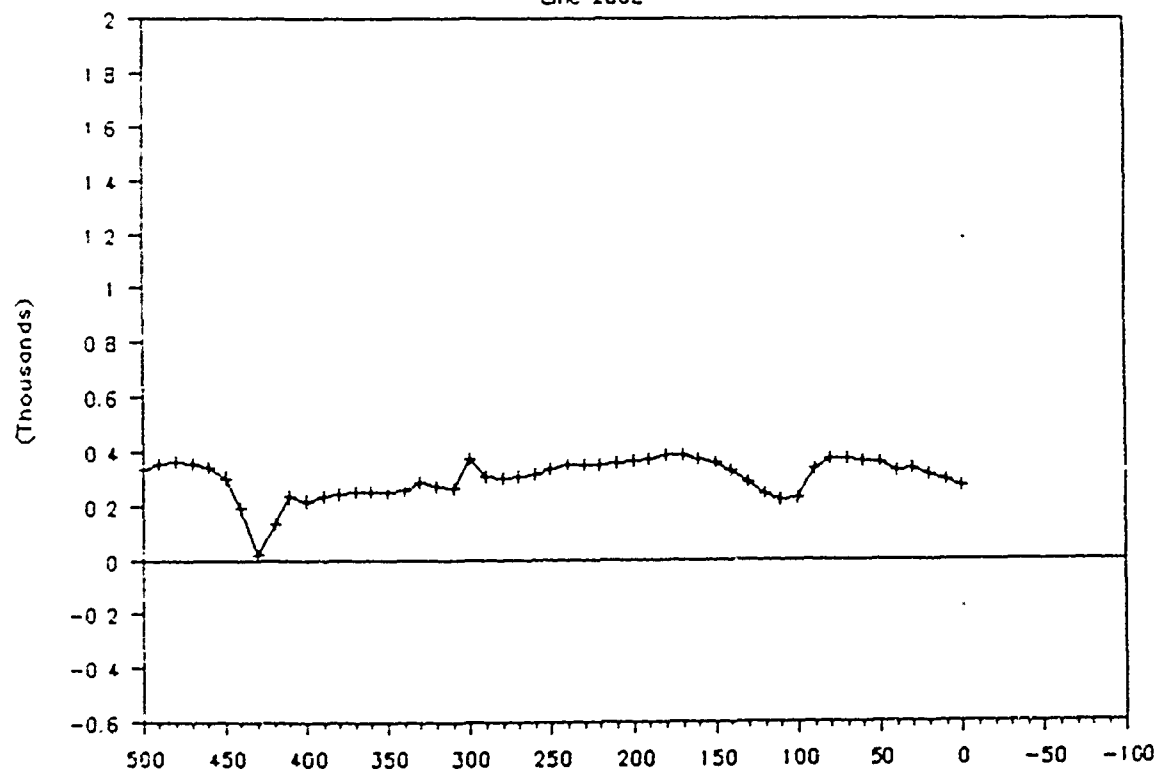
BEALE AFB - Landfill 1

Line 260E



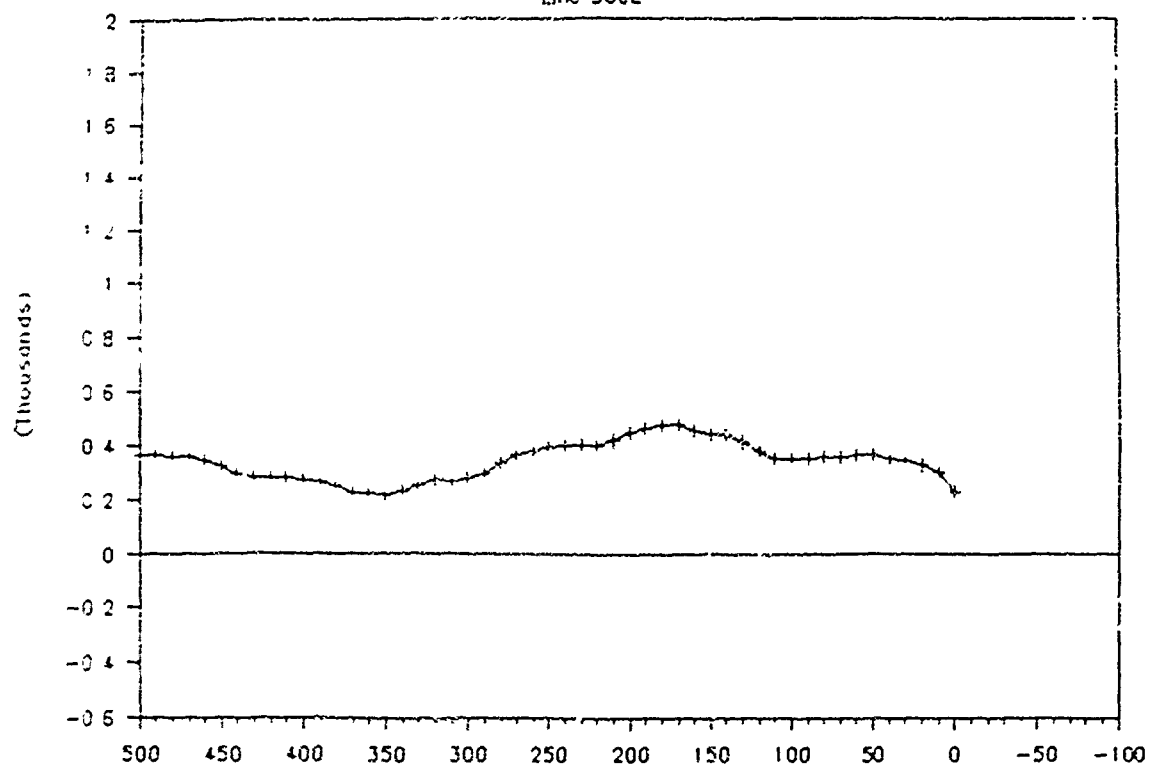
BEALE AFB - Landfill 1

Line 280E



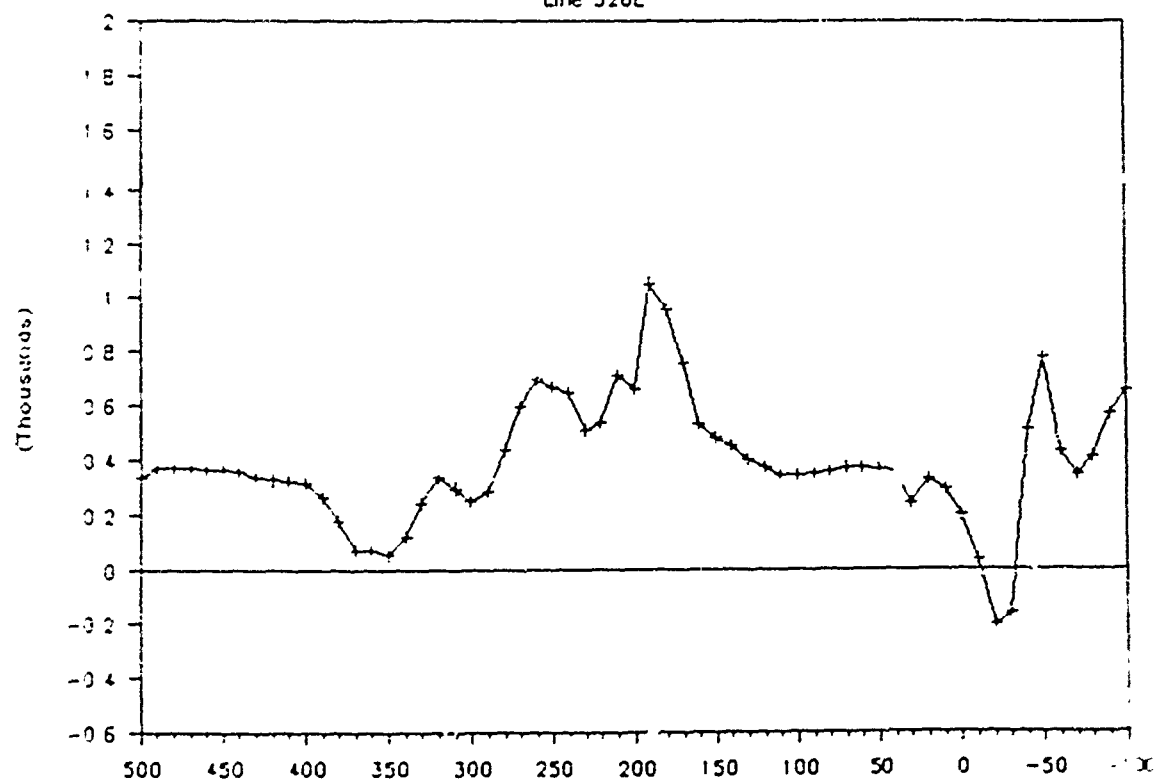
BEALE AFB - Landfill 1

Line 300E



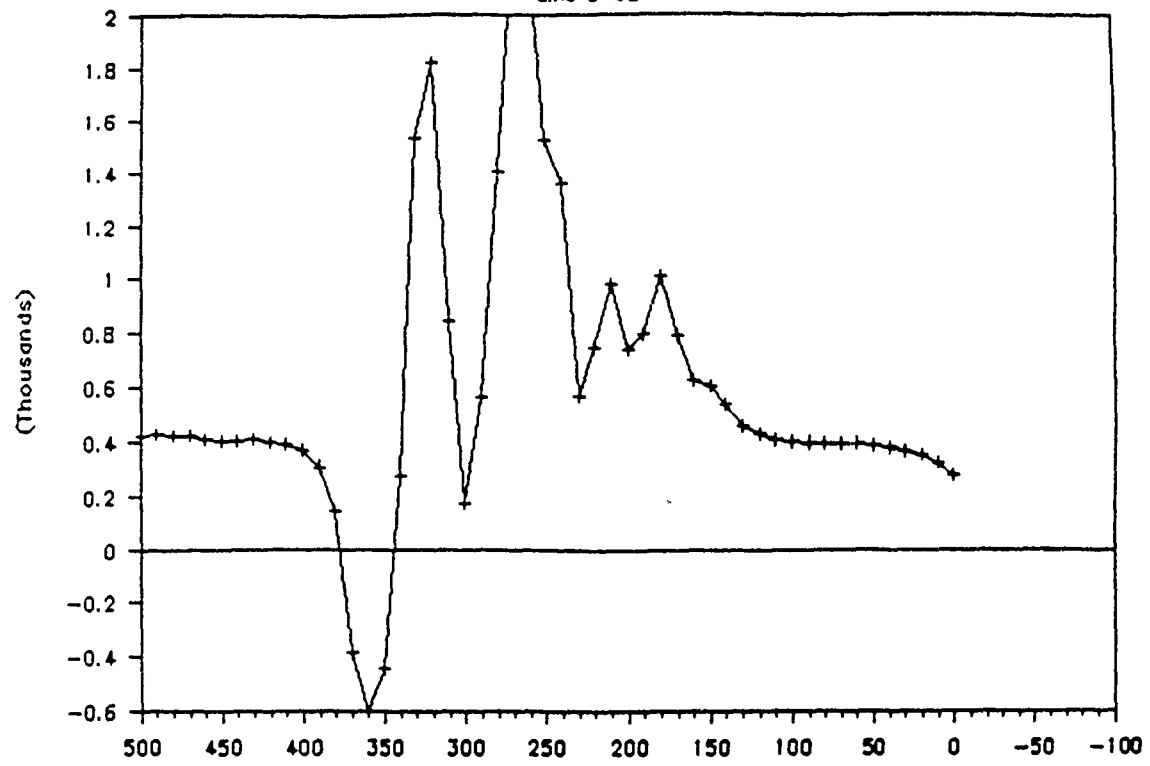
BEALE AFB - Landfill 1

Line 320E



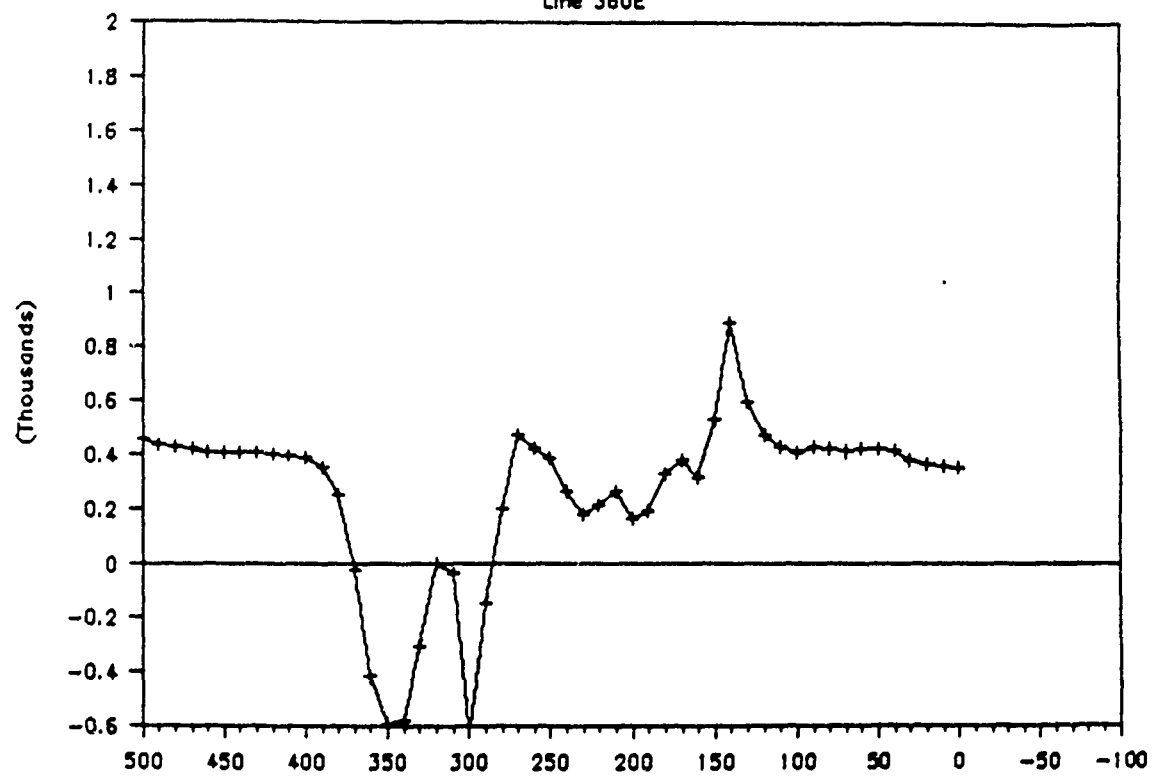
BEALE AFB - Landfill 1

Line 340E



BEALE AFB - Landfill 1

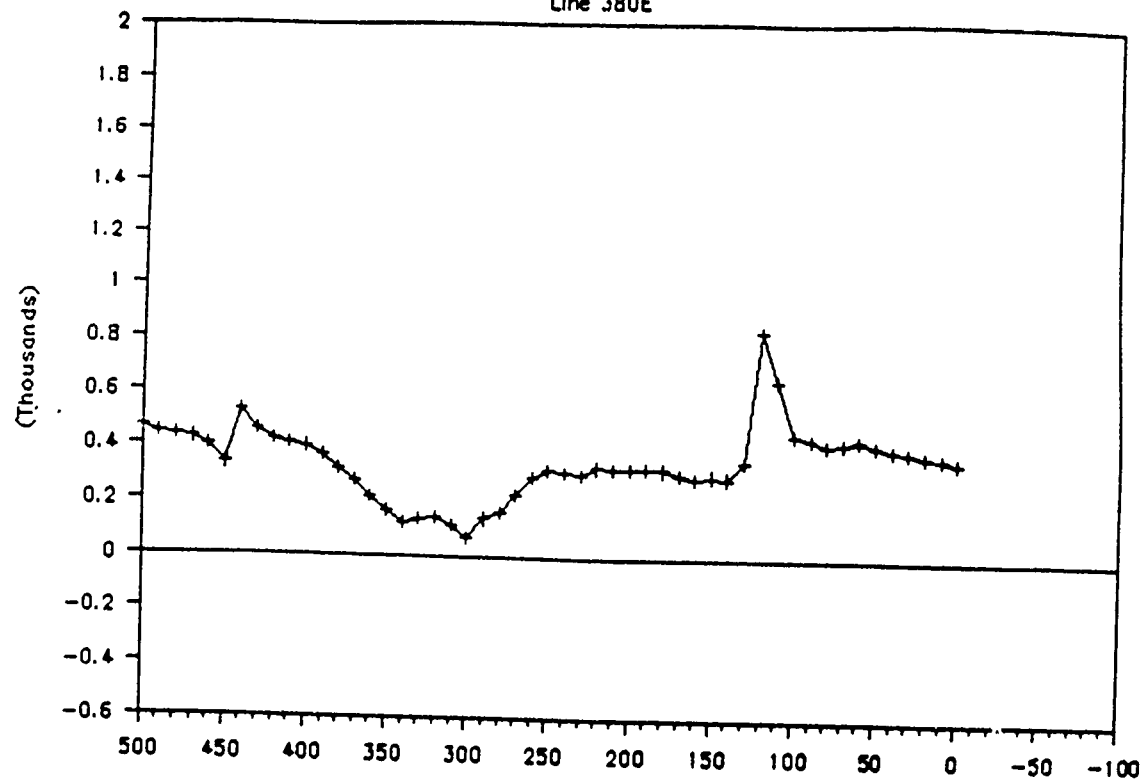
Line 360E



H-35

BEALE AFB - Landfill 1

Line 380E



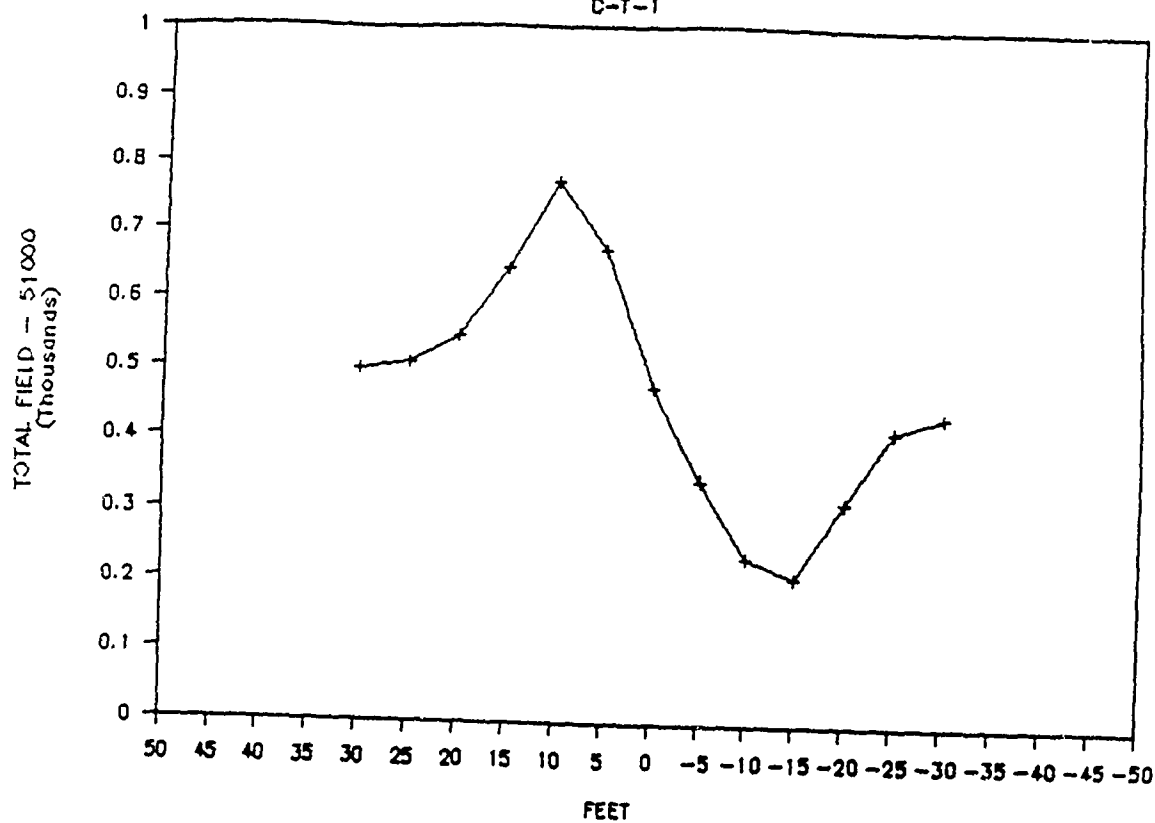
SITE 22

ABANDONED UNDERGROUND STORAGE TANKS

Geophysical Data

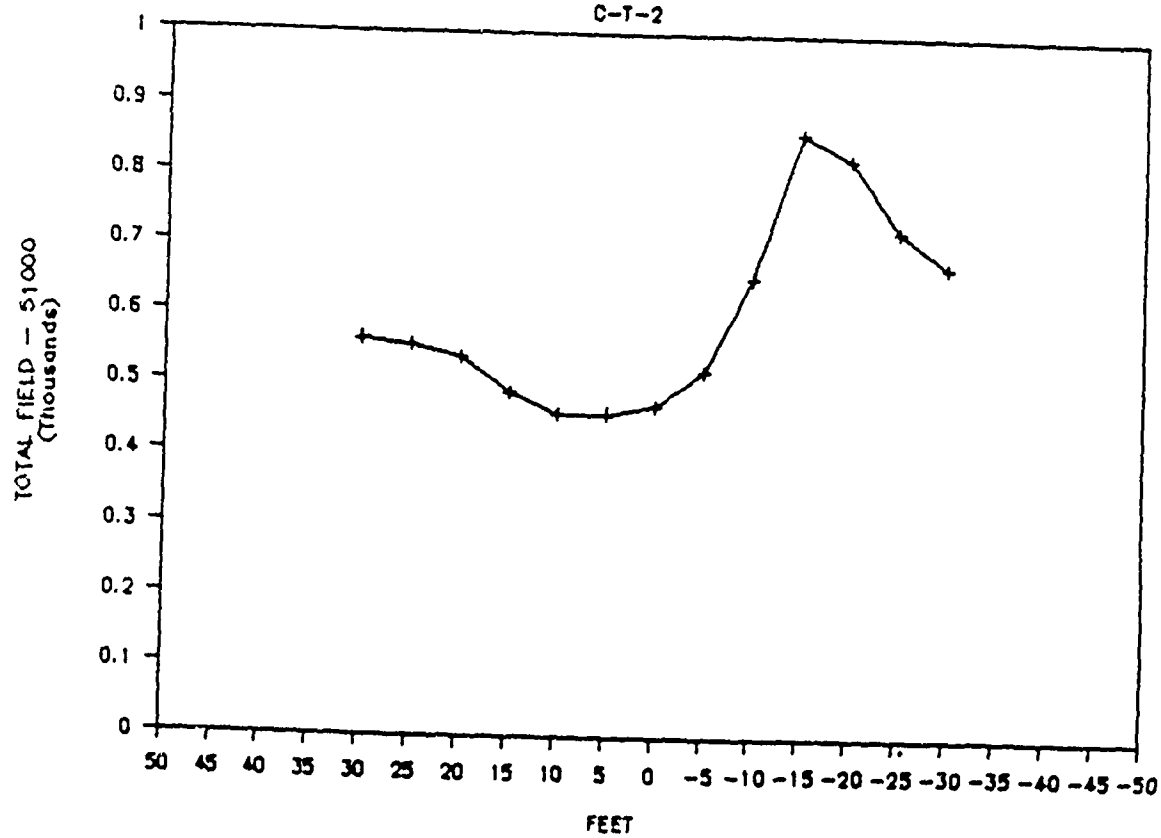
BEALE AFB

C-T-1



BEALE AFB

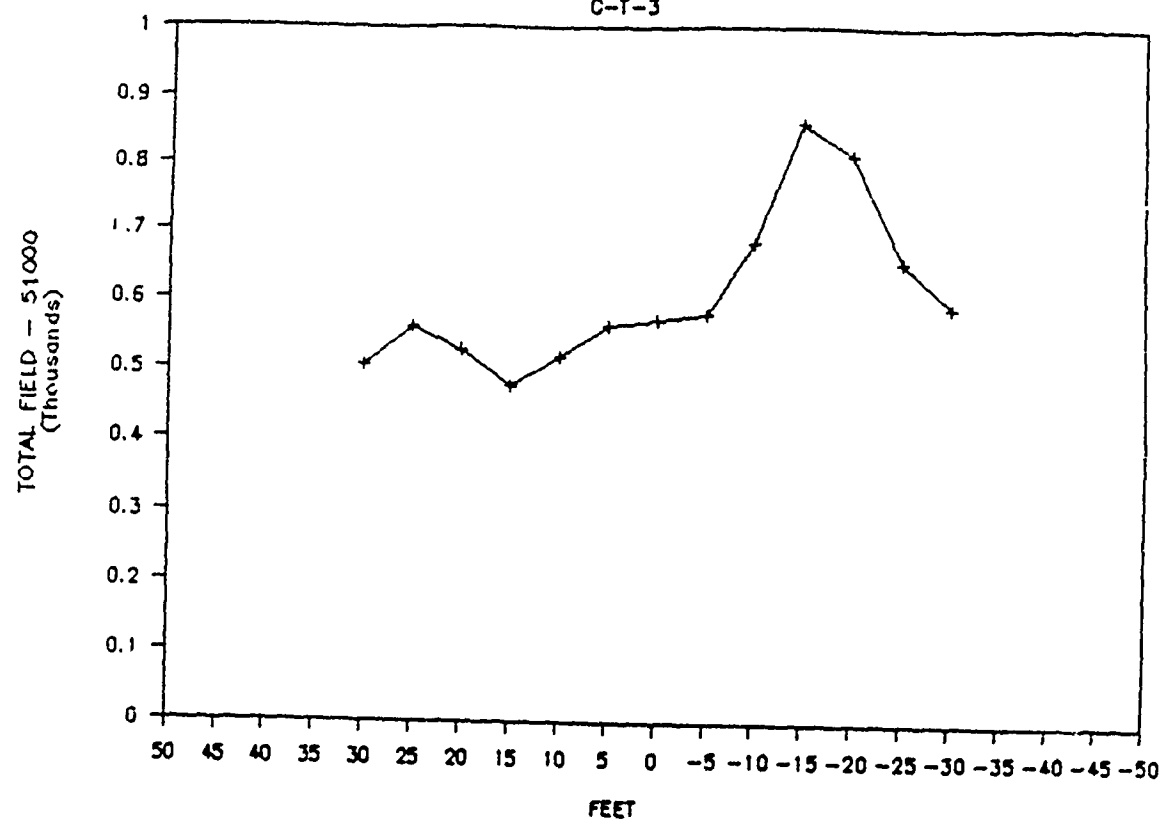
C-T-2



H-37

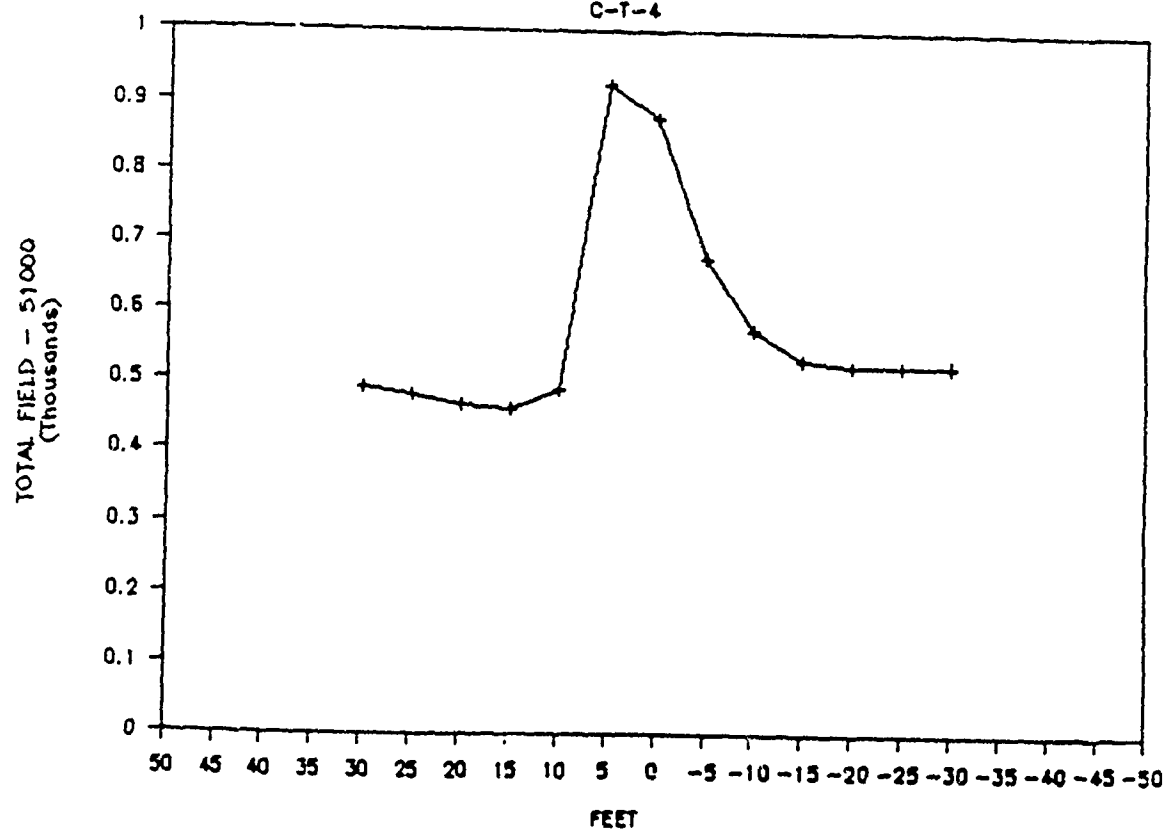
BEALE AFB

C-T-3



BEALE AFB

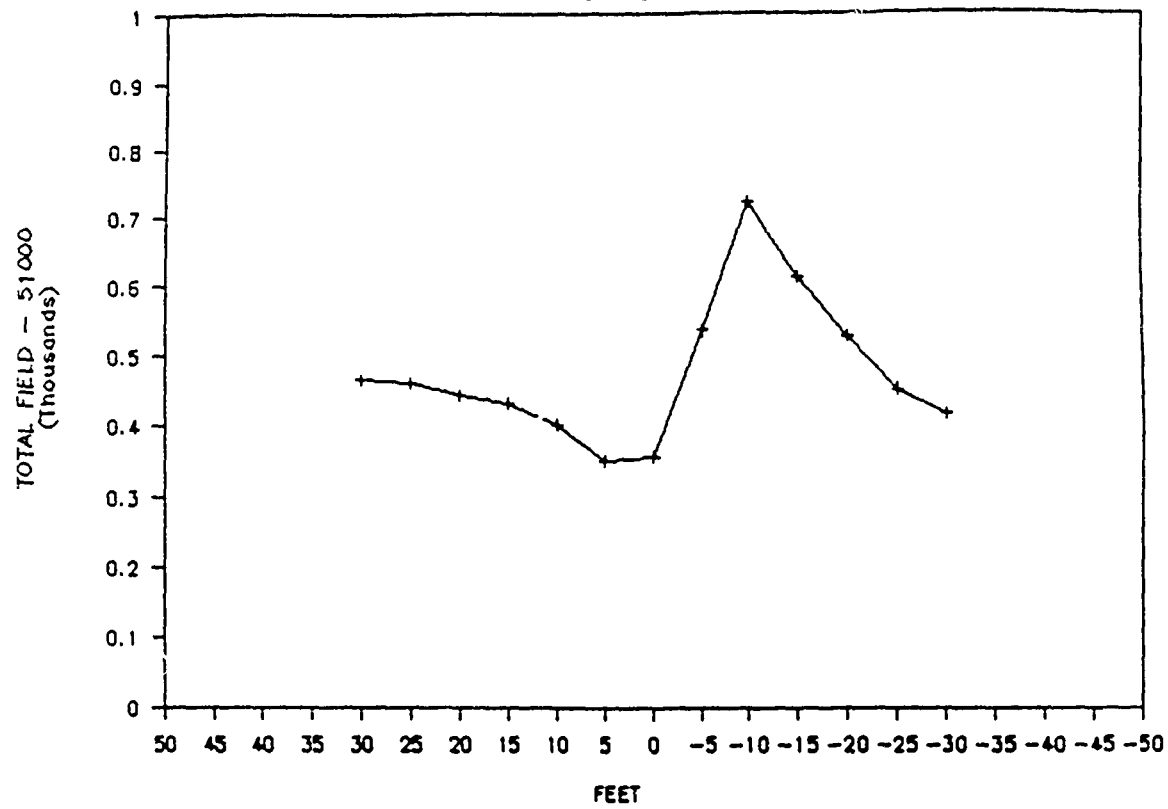
C-T-4



H-38

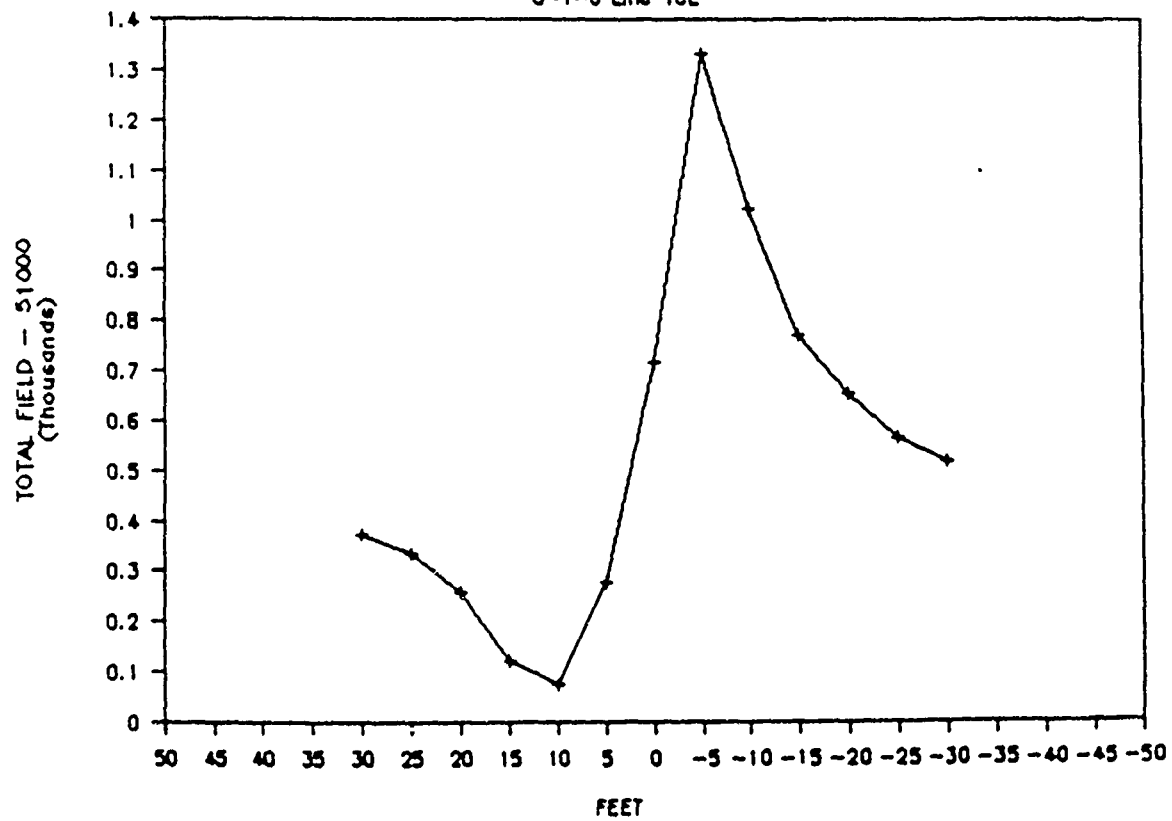
BEALE AFB

C-T-5



BEALE AFB

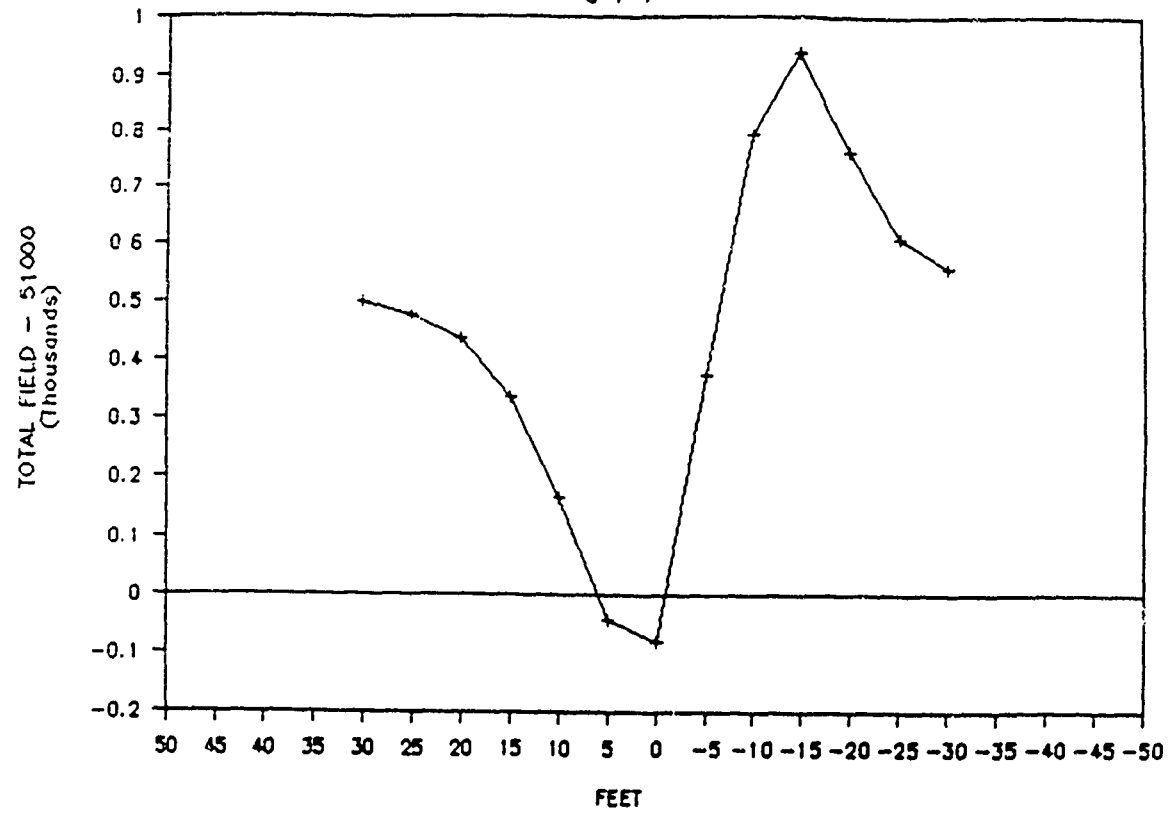
C-T-6 Line 10E



H-39

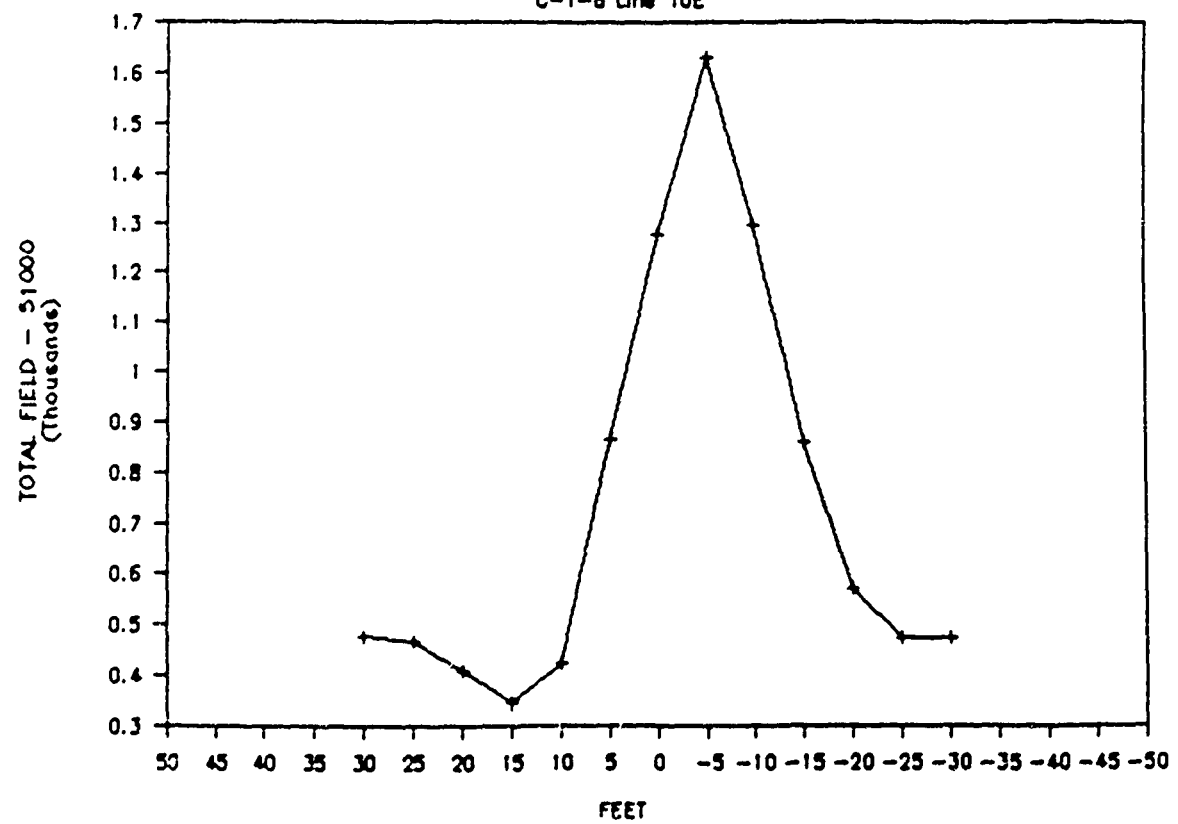
BEALE AFB

C-T-7



BEALE AFB

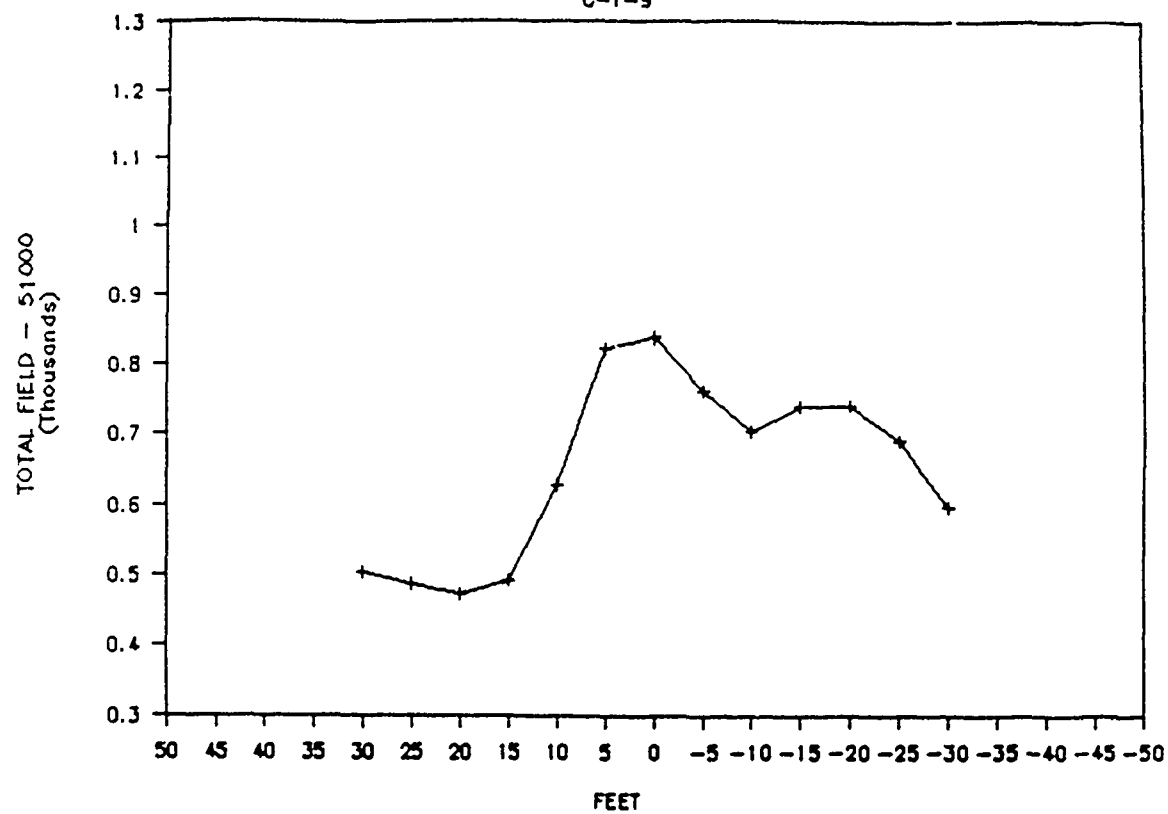
C-T-8 Line 10E



H-40

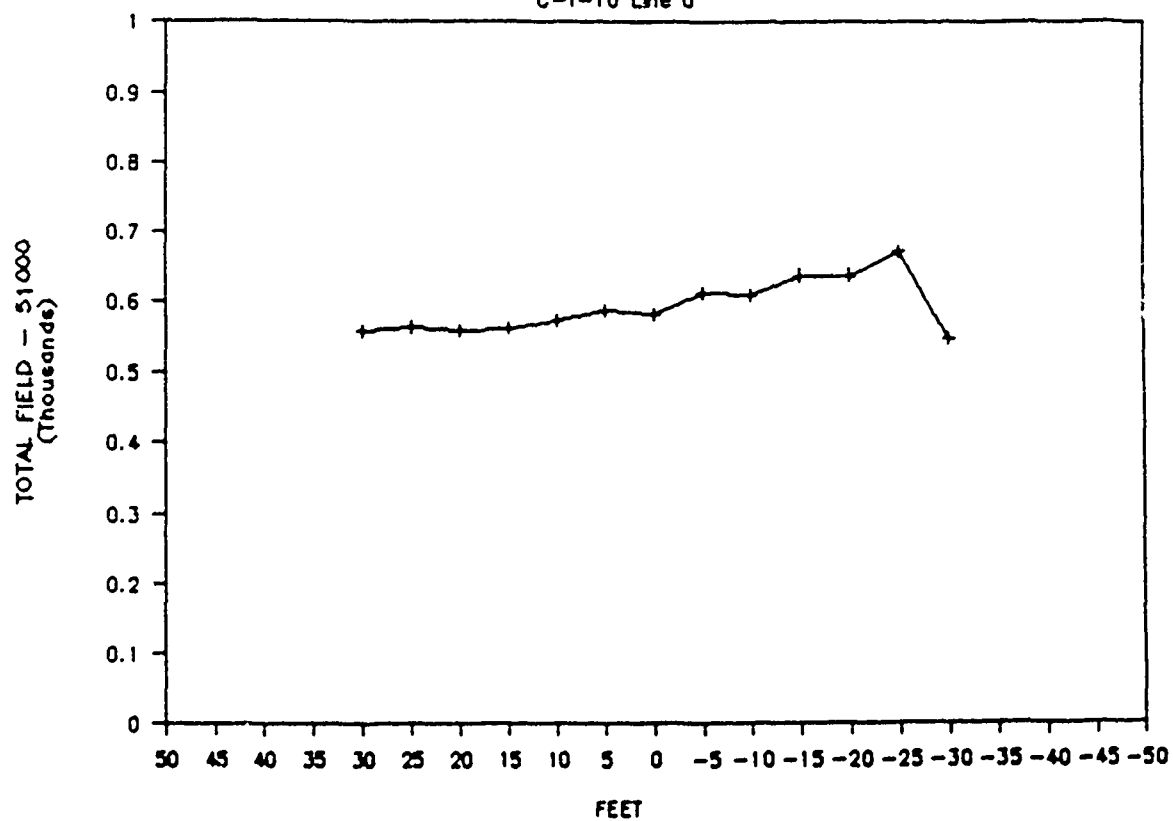
BEALE AFB

C-T-9



BEALE AFB

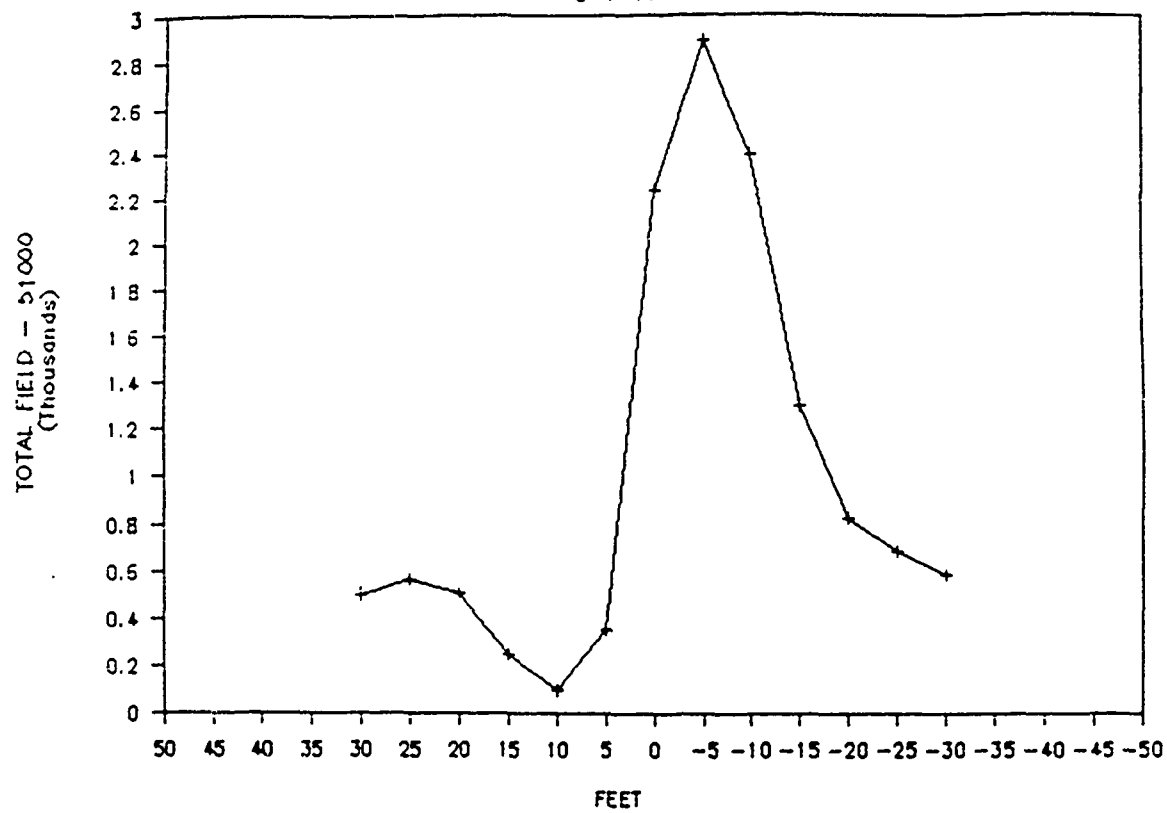
C-T-10 Line 0



H-41

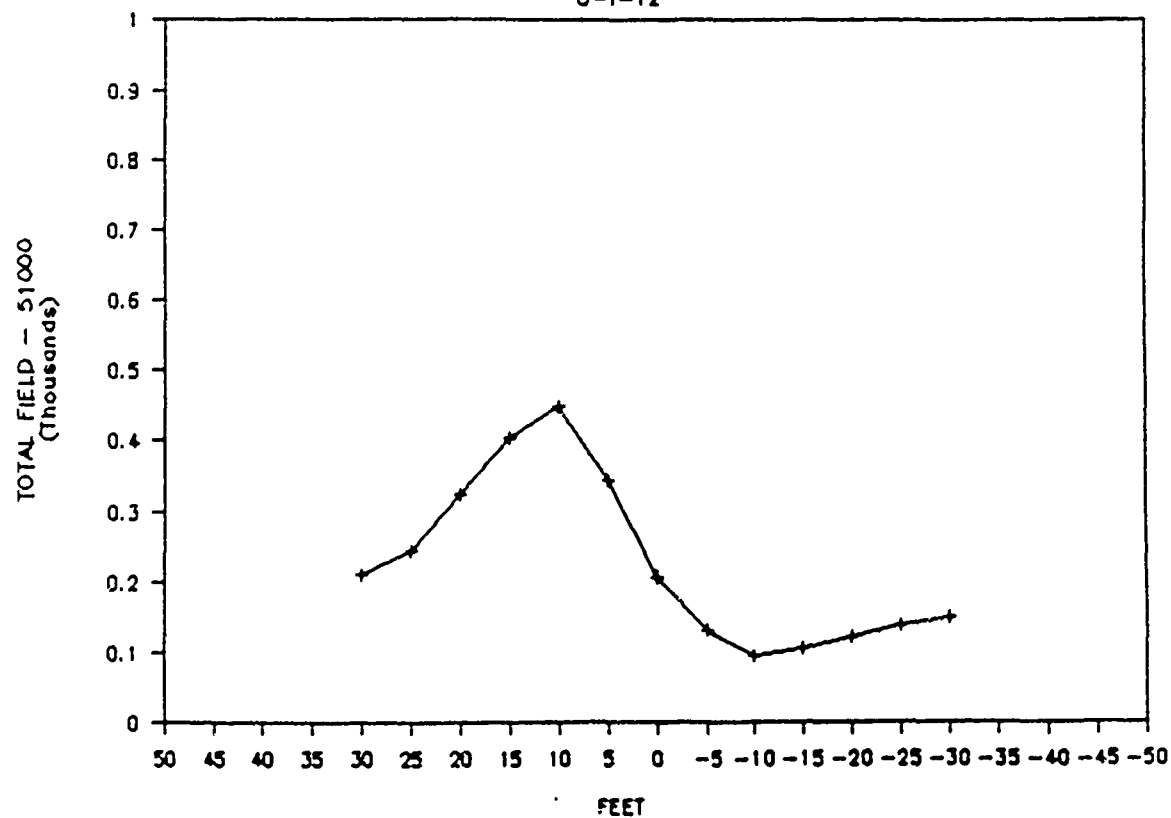
BEALE AFB

C-T-11



BEALE AFB

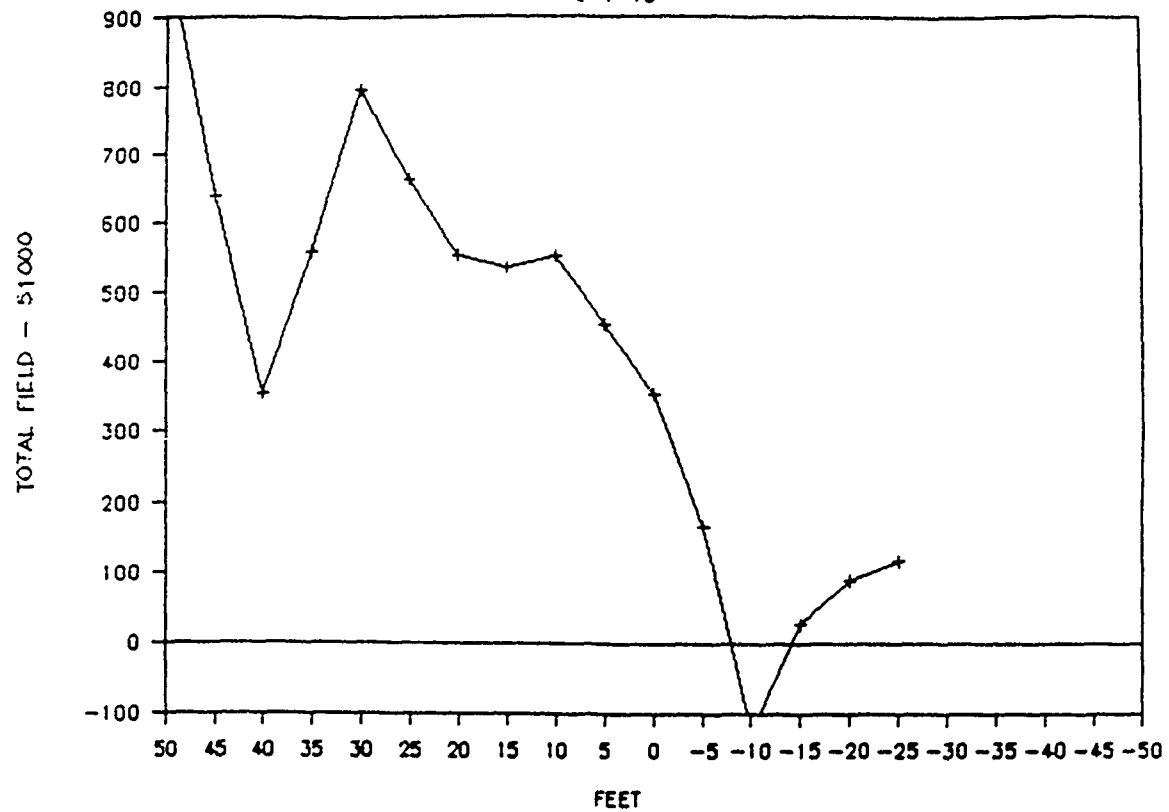
C-T-12



H-42

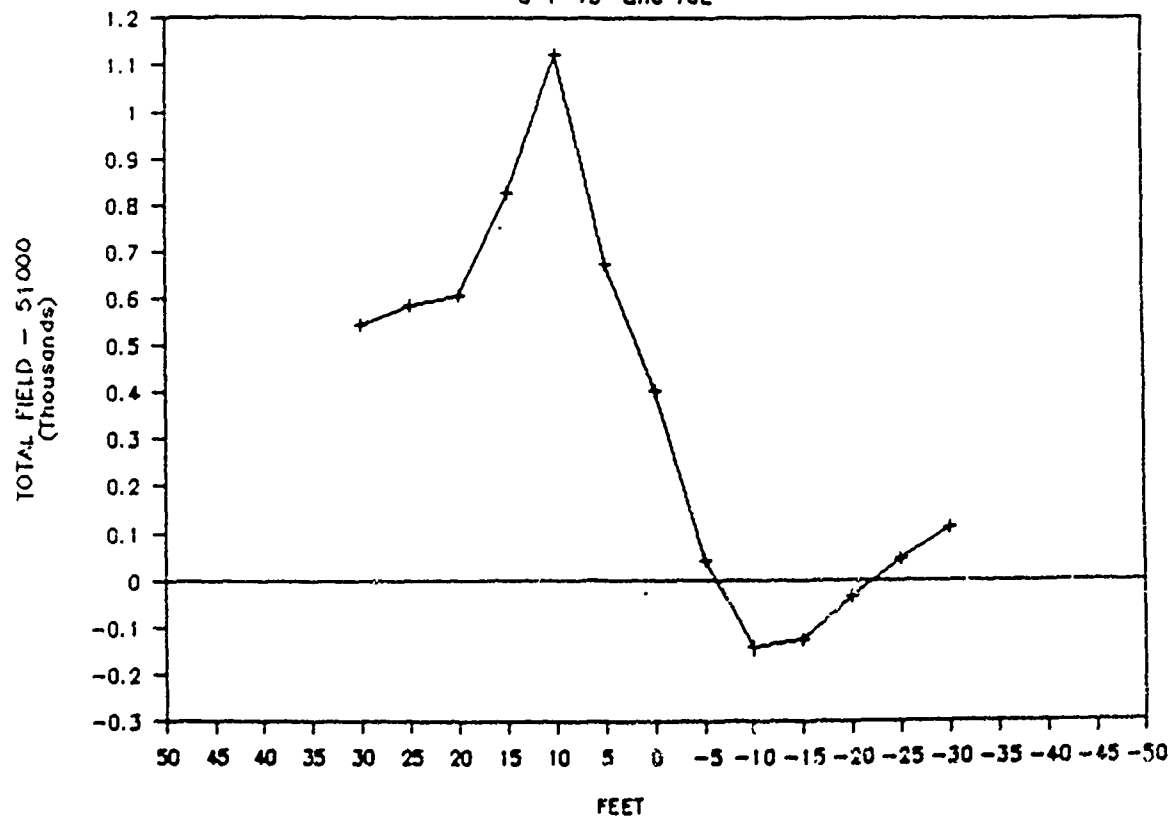
BEALE AFB

C-T-15



BEALE AFB

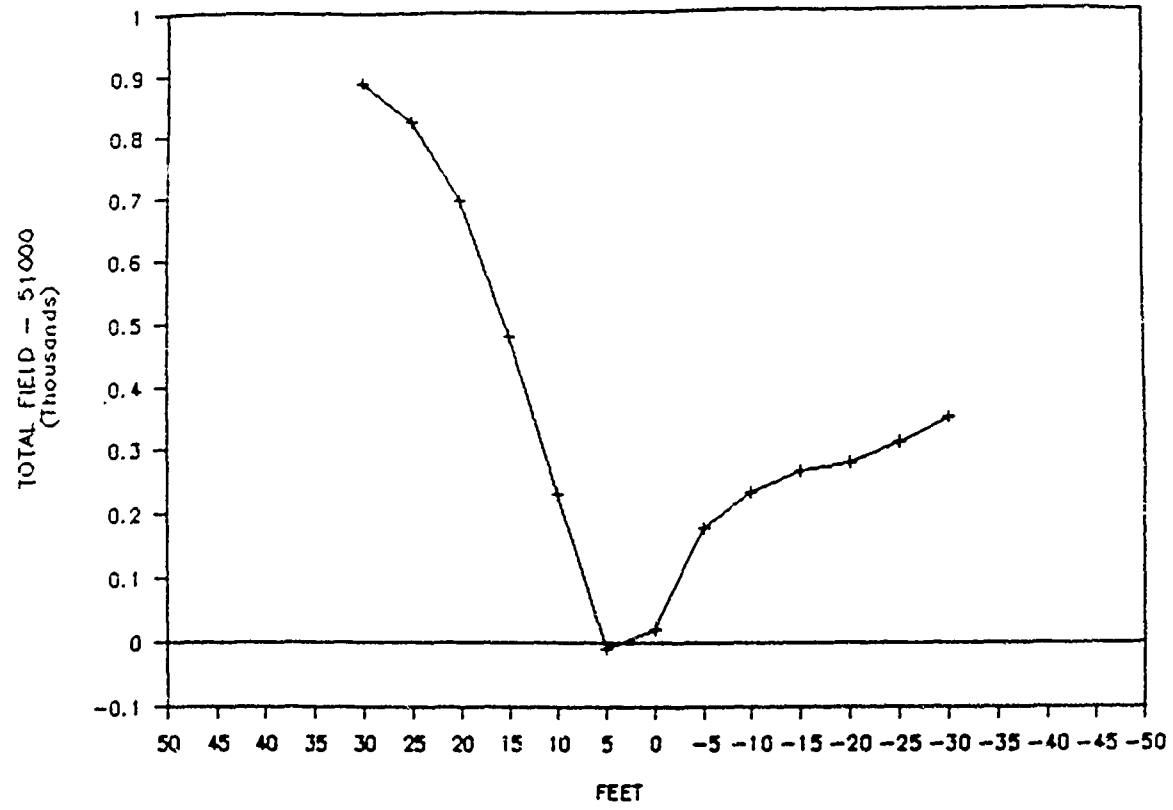
C-T-15 Line 10E



H-43

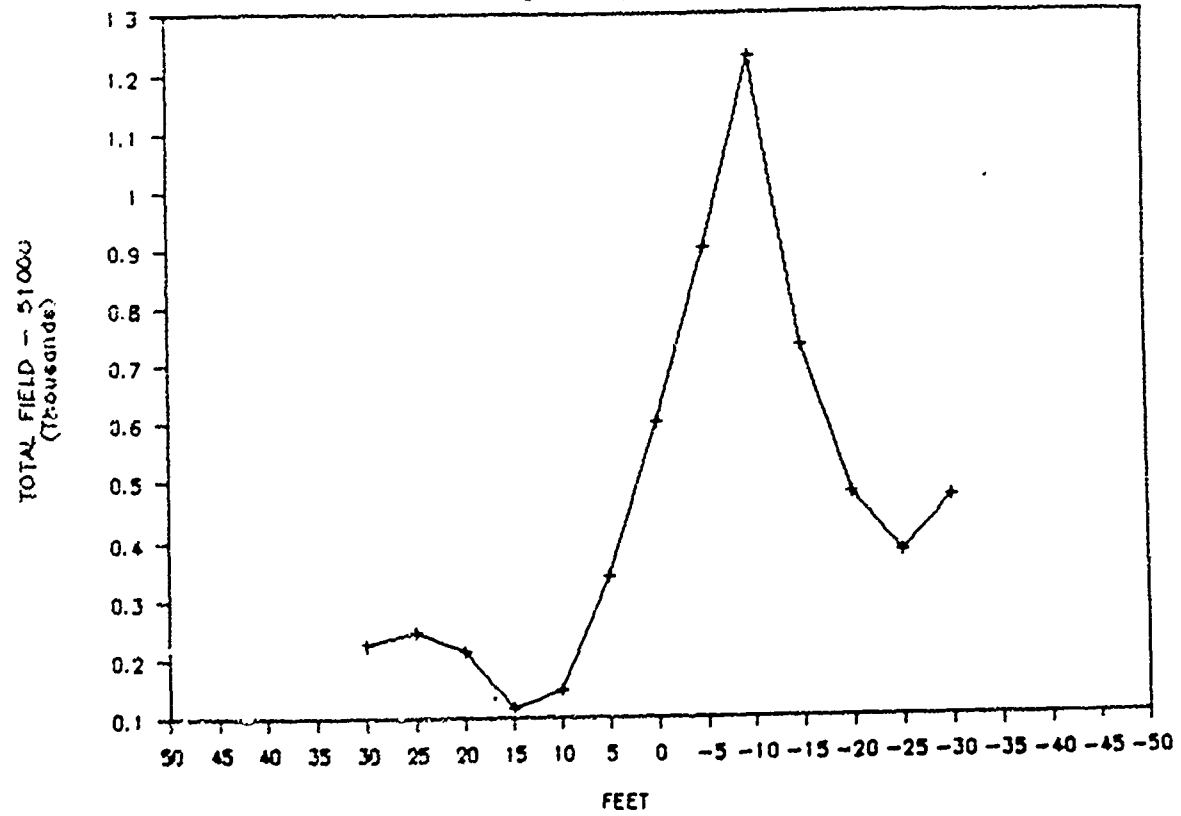
BEALE AFB

C-T-16



BEALE AFB

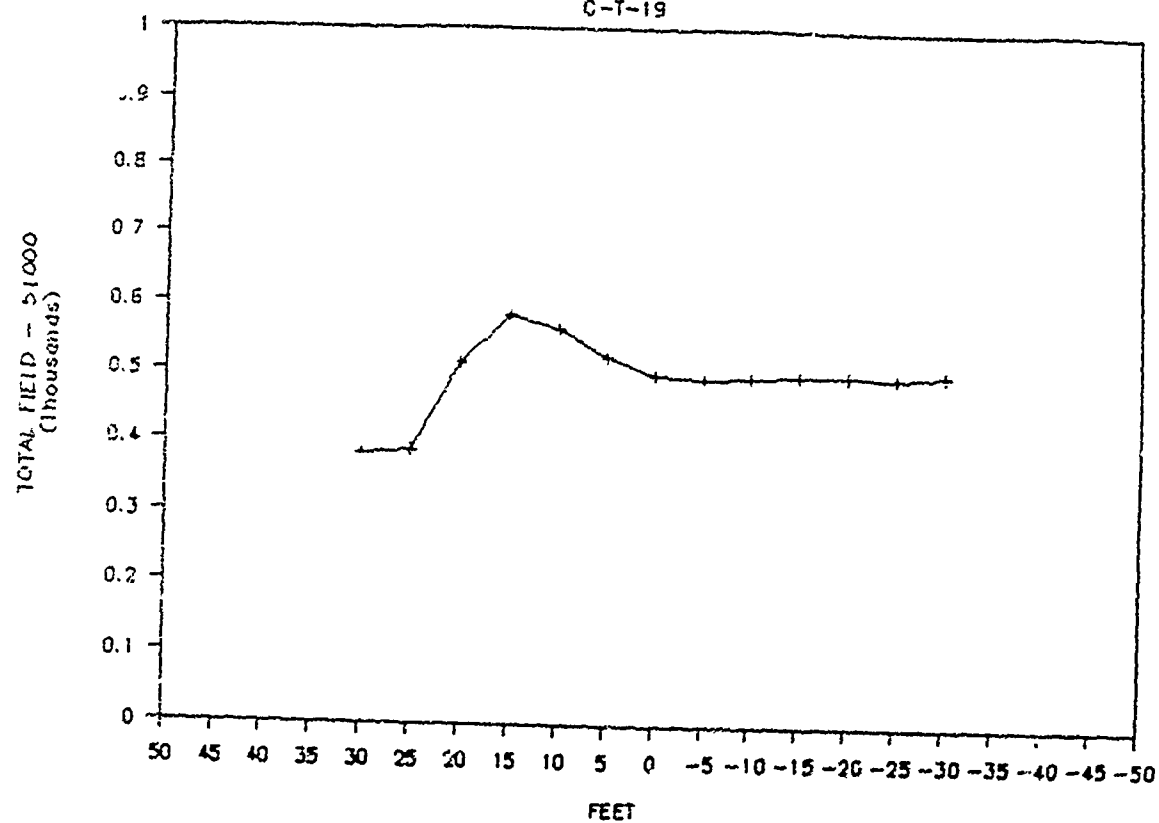
C-T-17 Line 10E



H-44

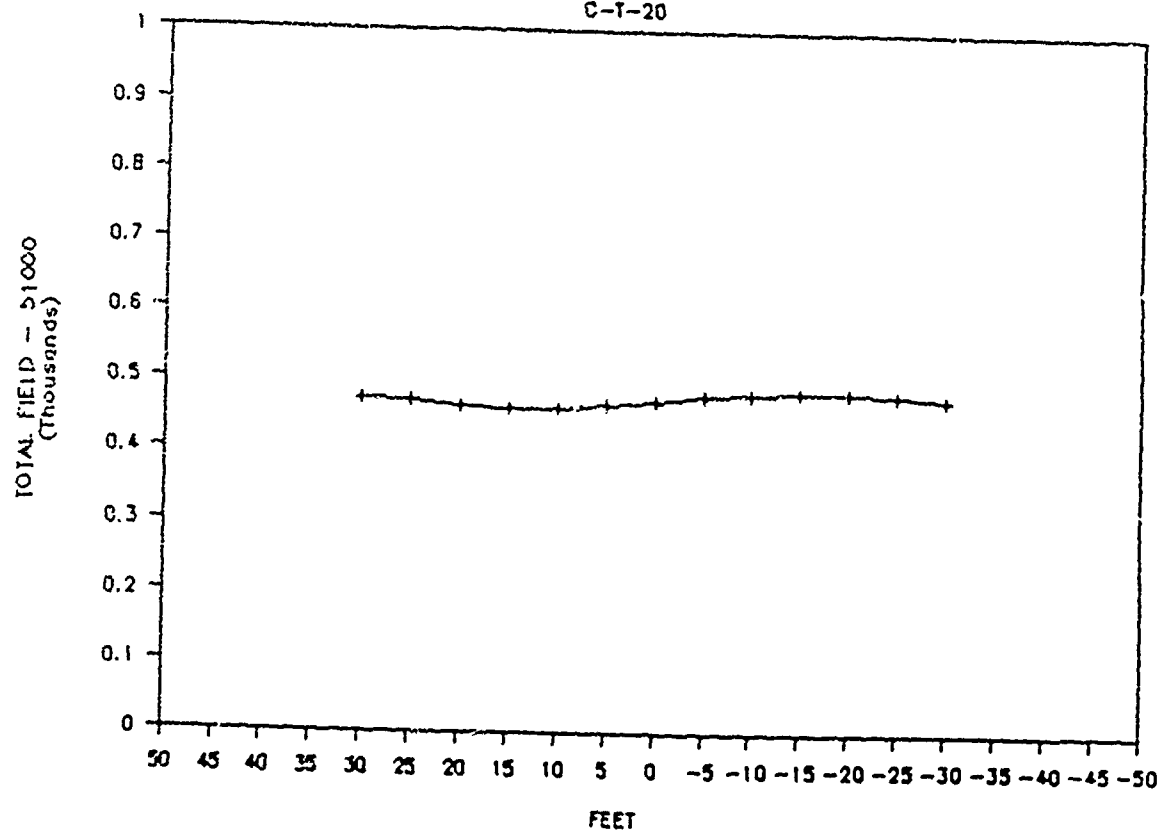
BEALE AFB

C-T-19



BEALE AFB

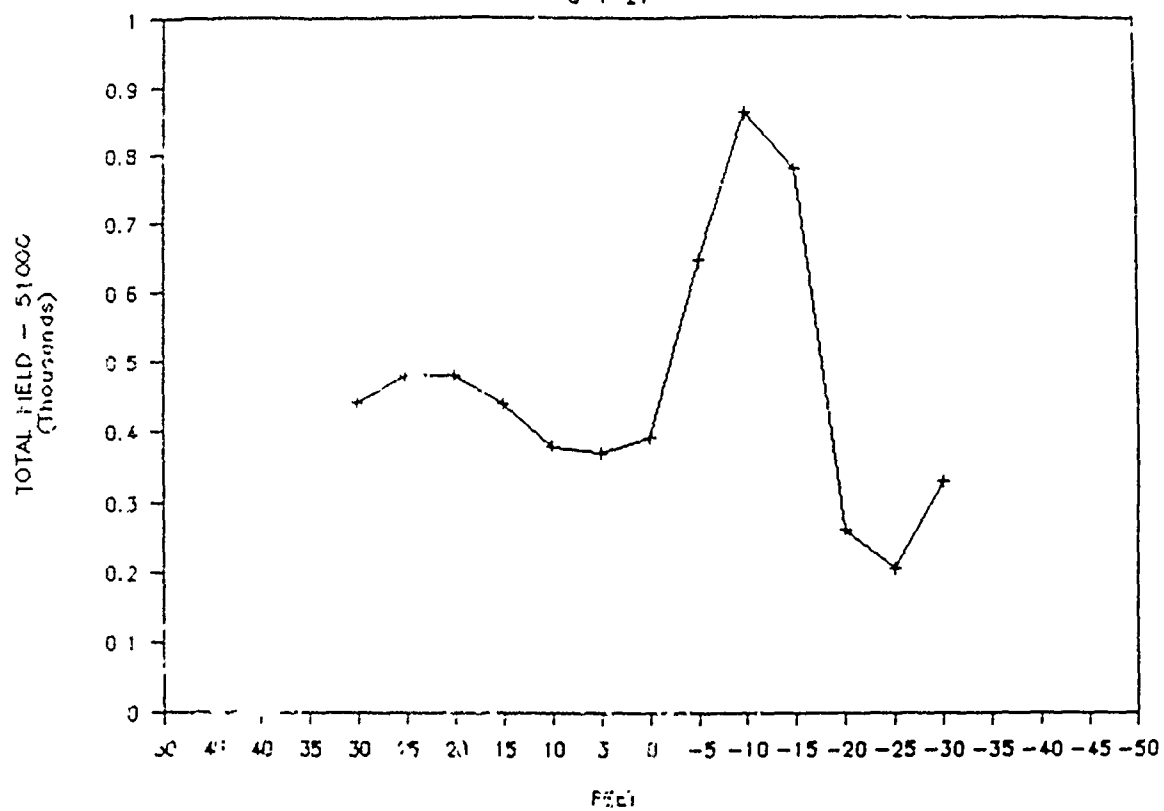
C-T-20



H-45

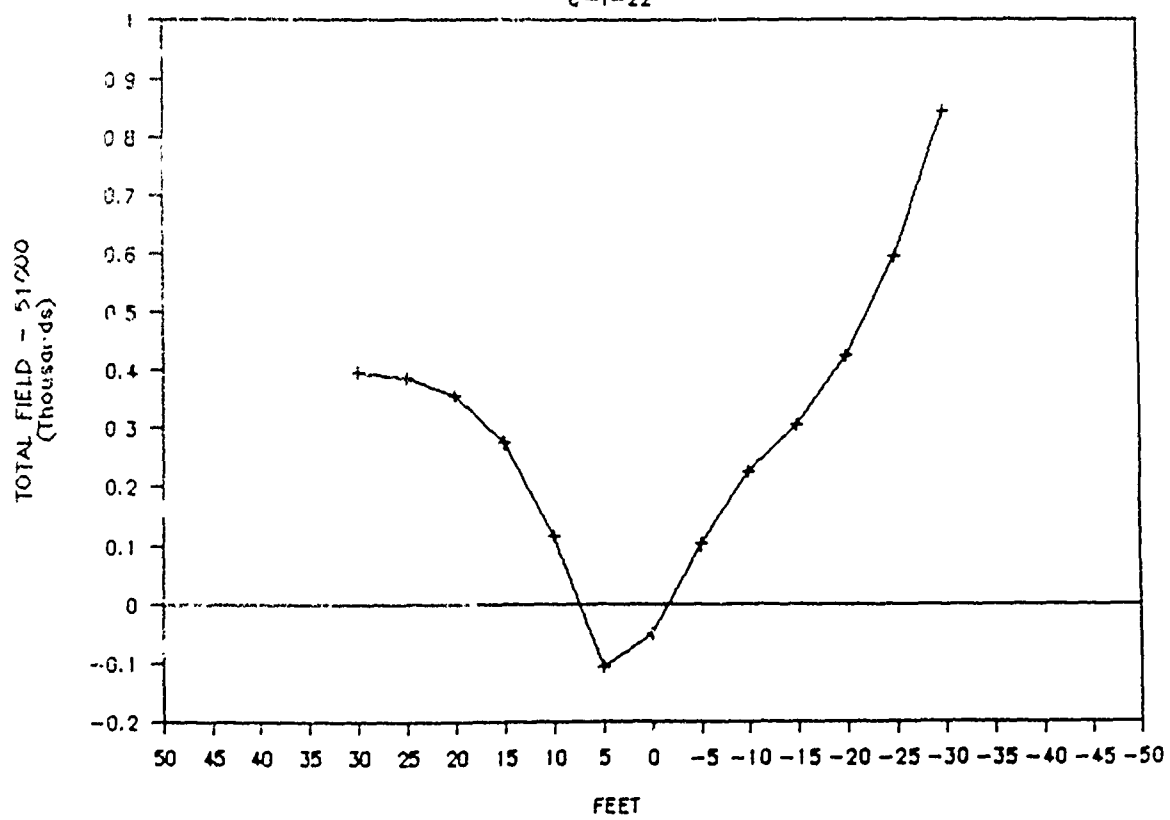
BEALE AFB

C-T-21



BEALE AFB

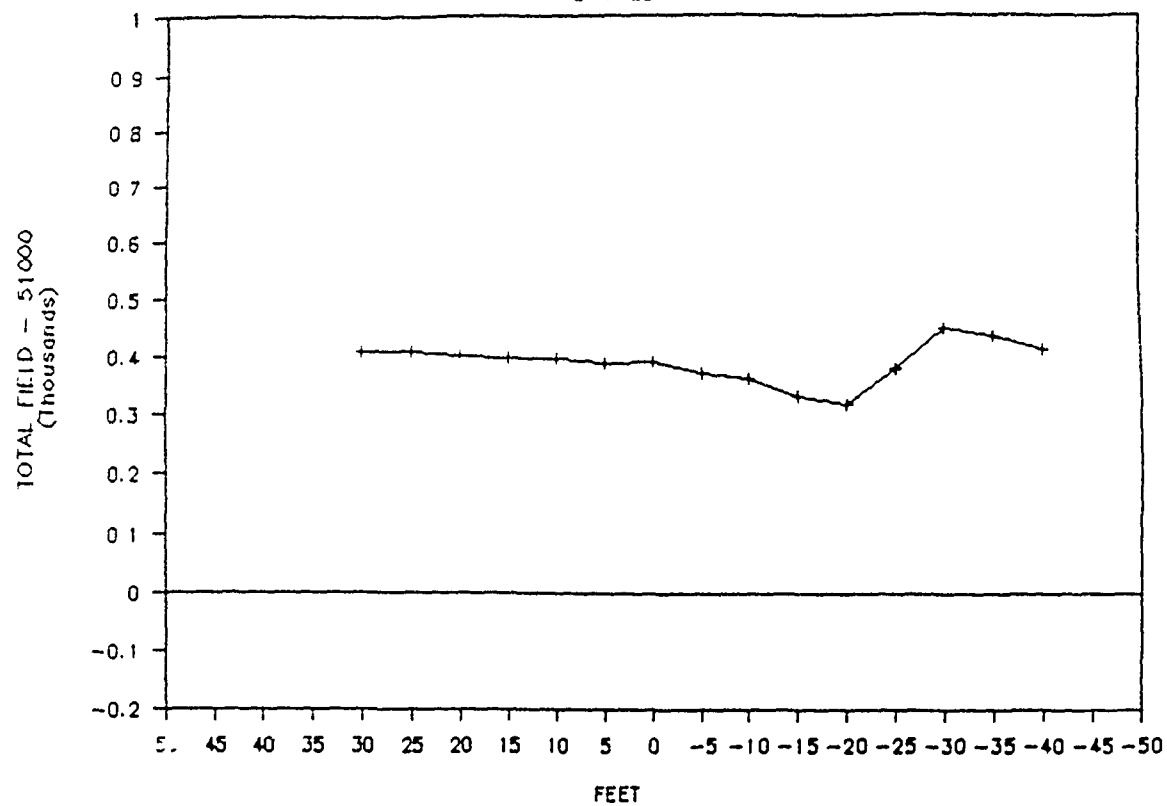
C-T-22



H-46

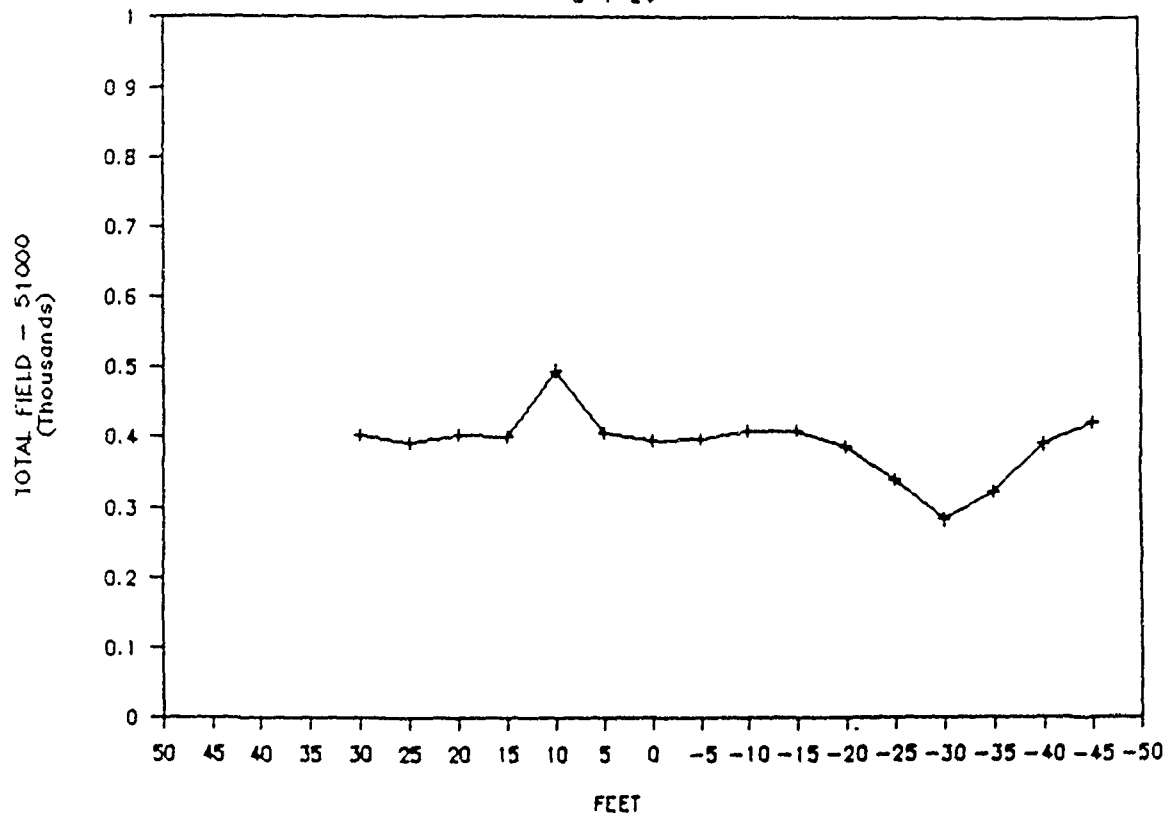
BEALE AFB

C-T-23



BEALE AFB

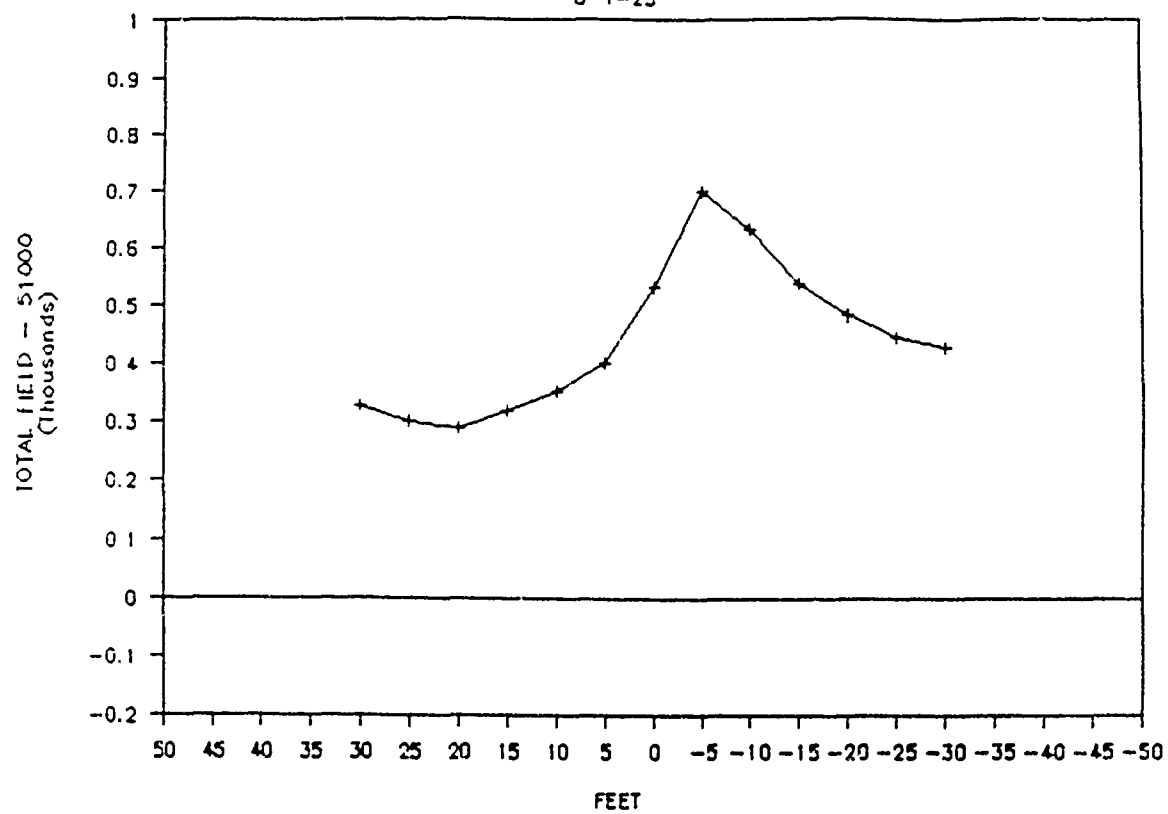
C-T-24



H-47

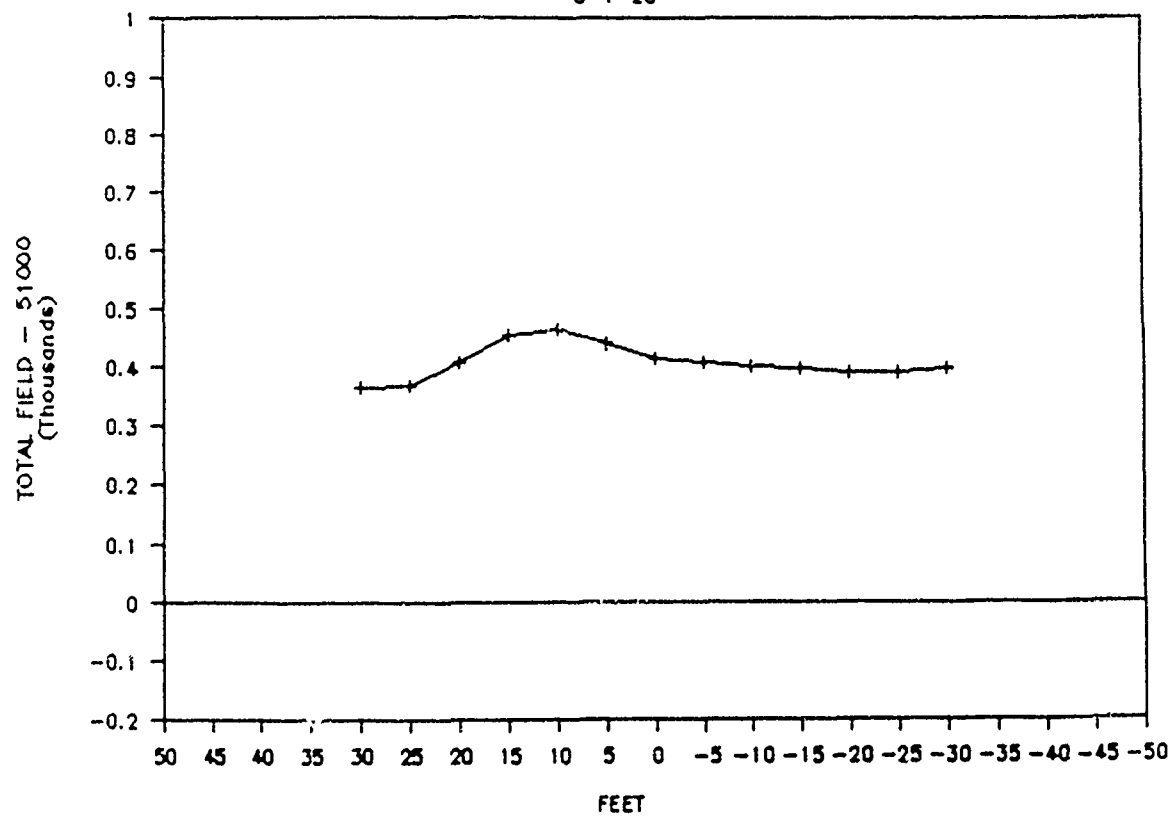
BEALE AFB

C-T-25



BEALE AFB

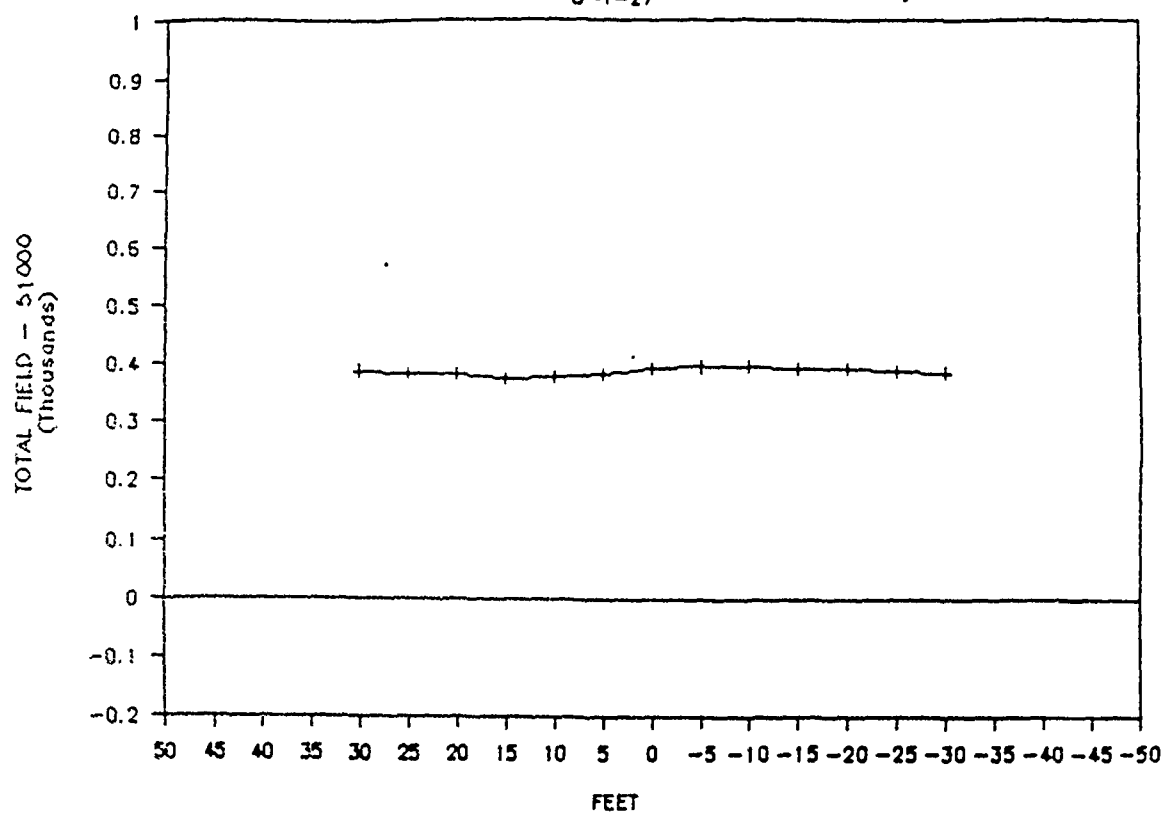
C-T-26



H-48

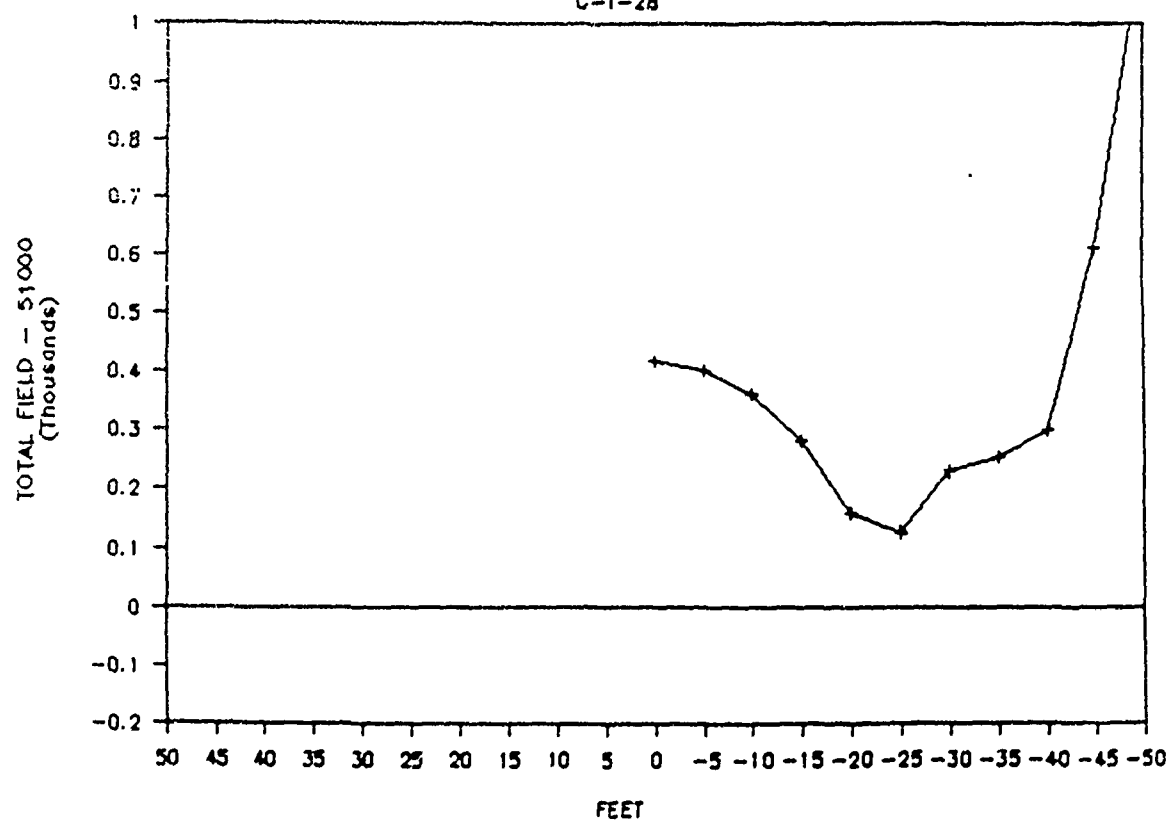
BEALE AFB

C-T-27



BEALE AFB

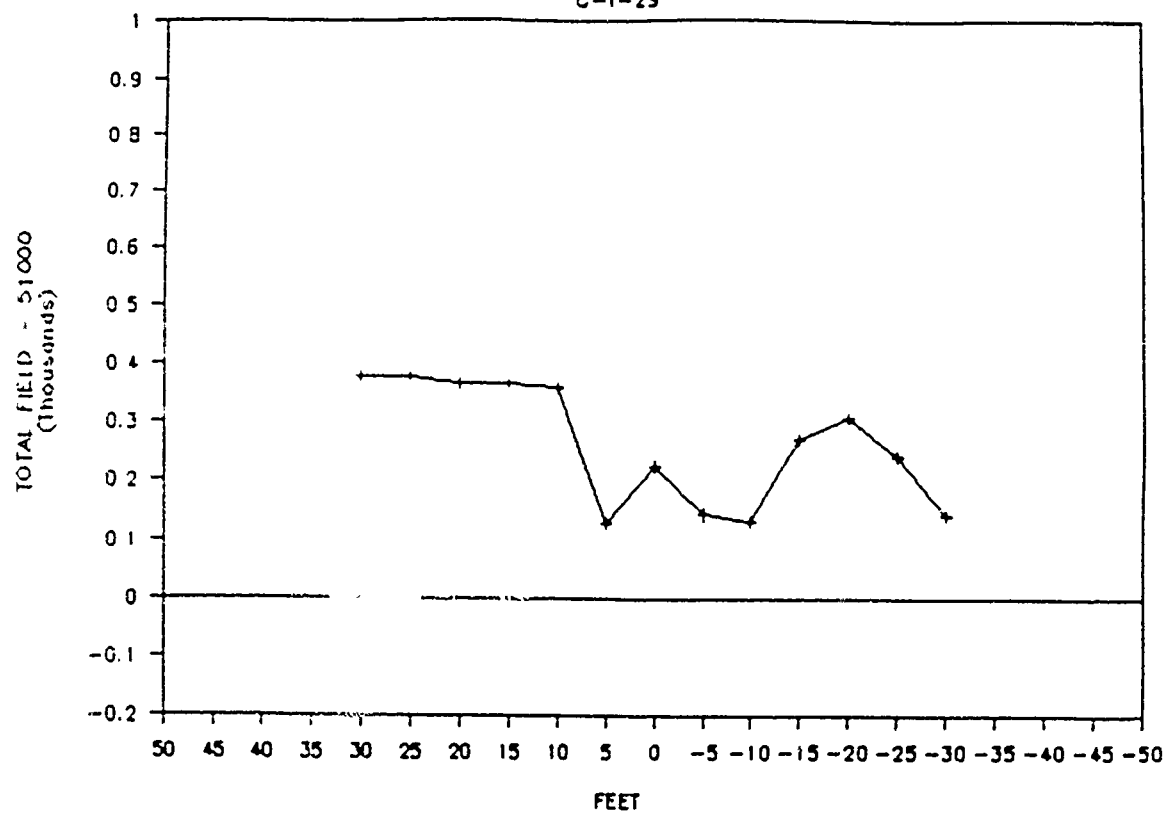
C-T-28



H-49

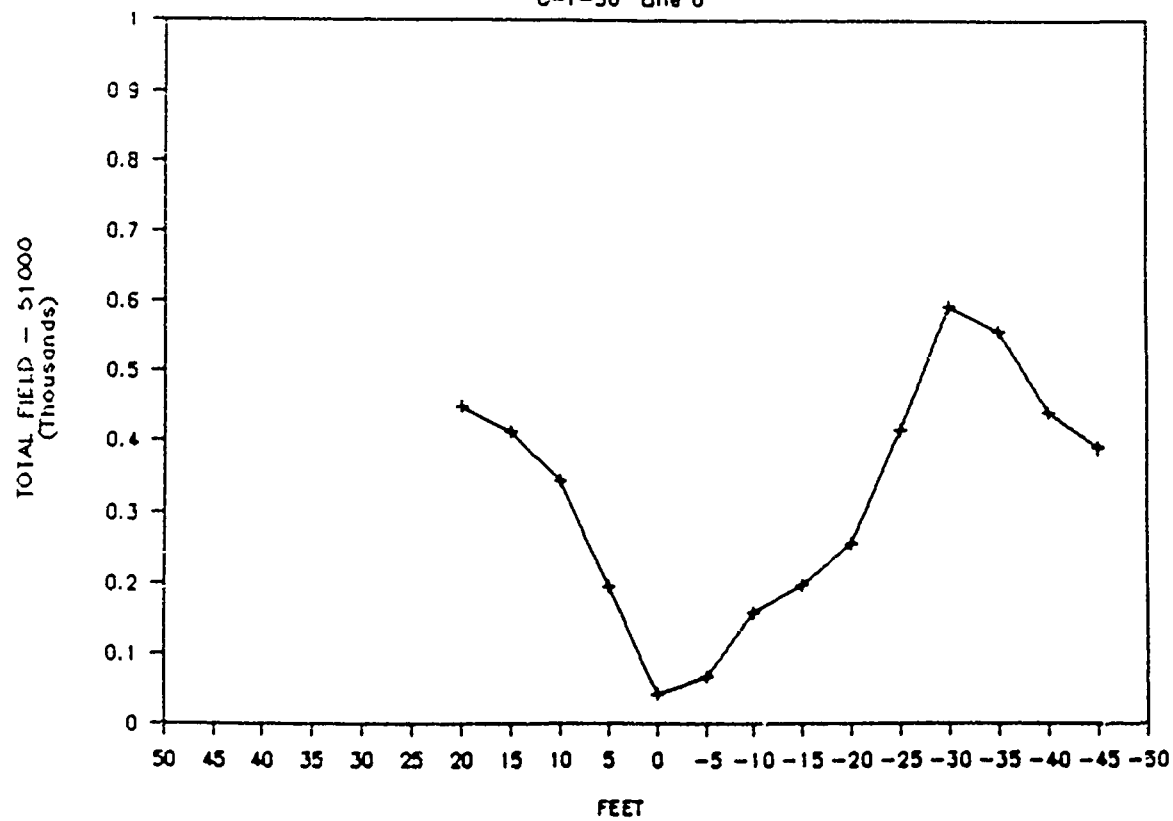
BEALE AFB

C-T-29



BEALE AFB

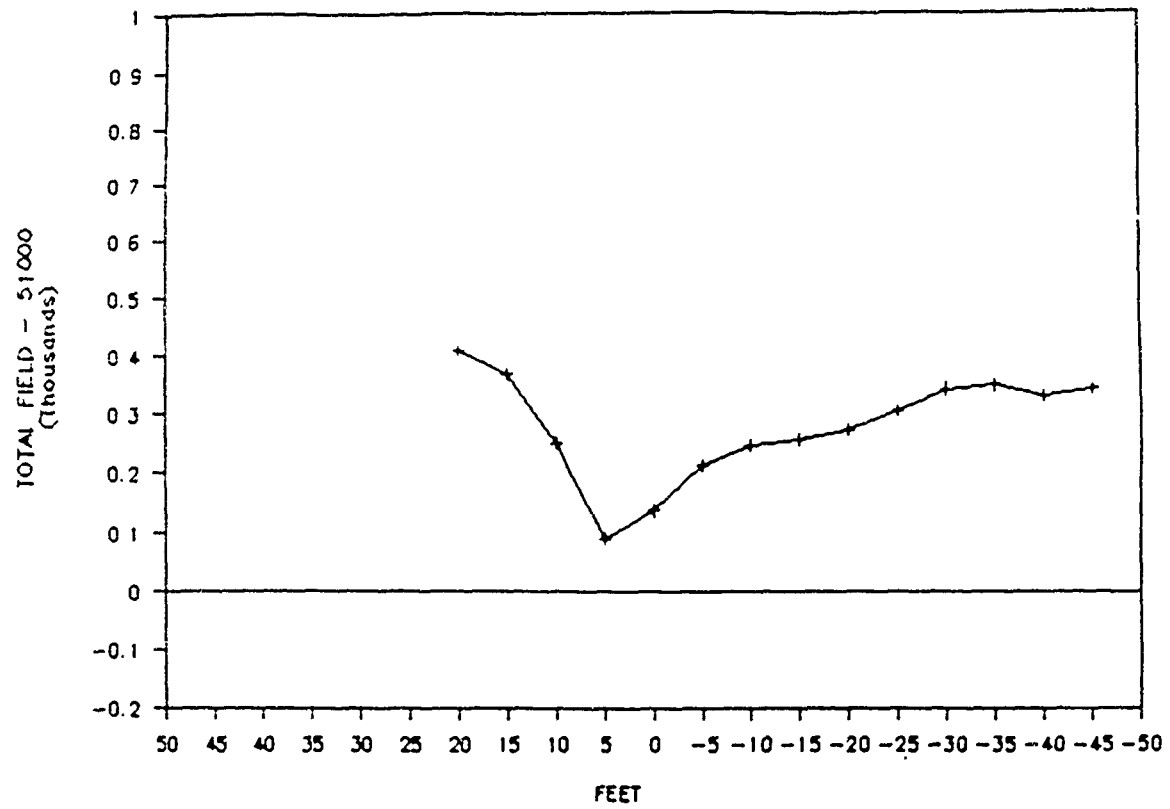
C-T-30 Line 0



H-50

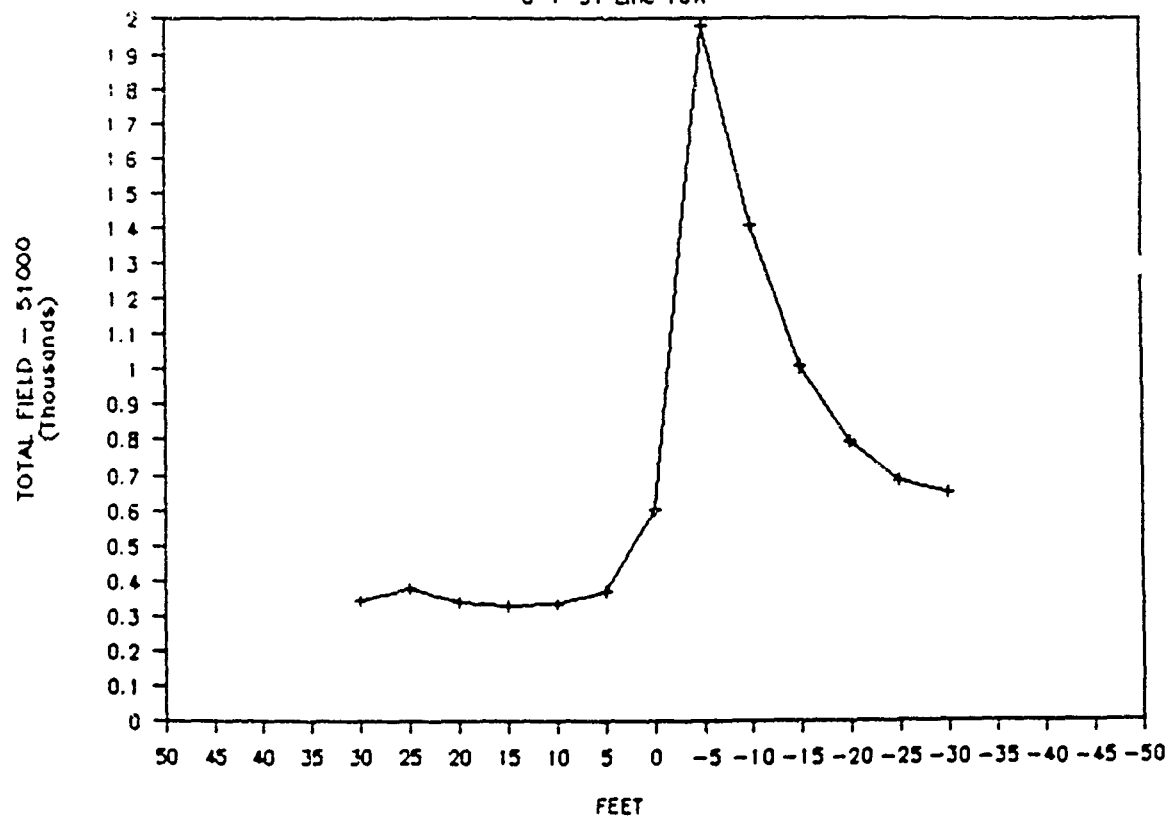
BEALE AFB

C-T-30



BEALE AFB

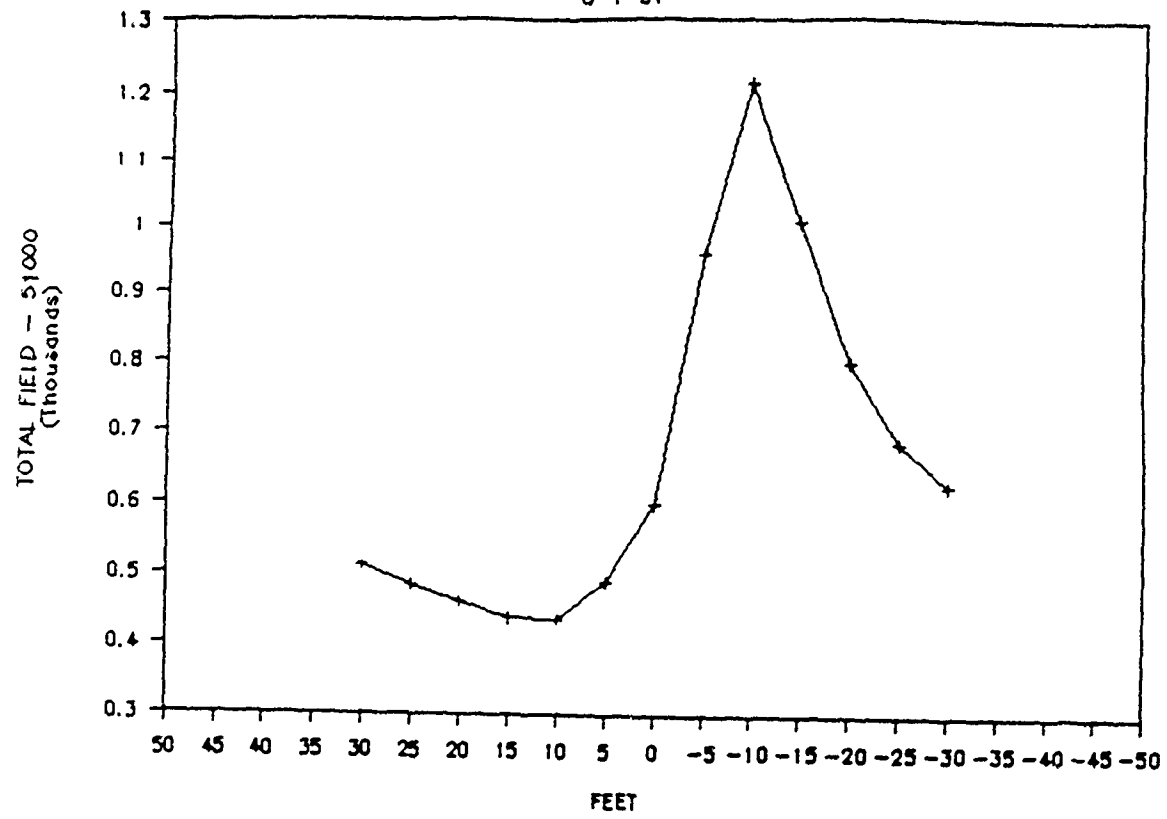
C-T-31 Line 10W



H-51

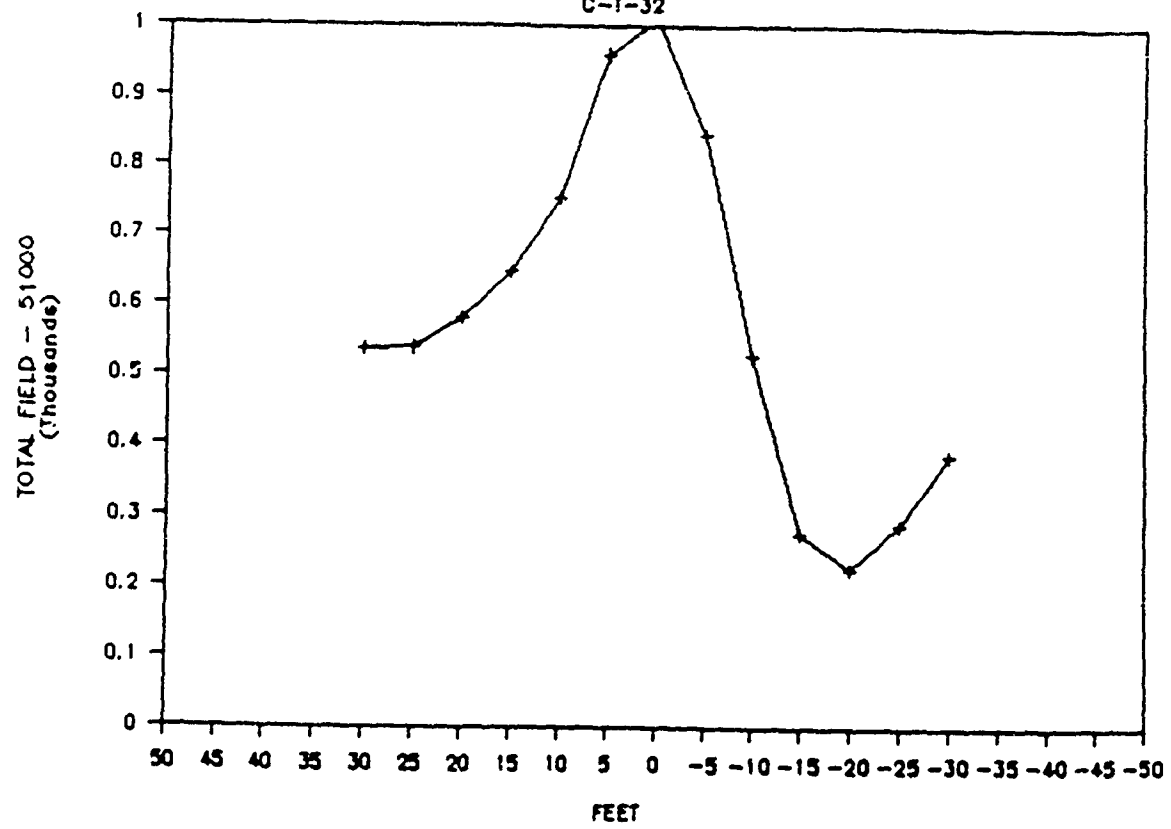
BEALE AFB

C-T-31



BEALE AFB

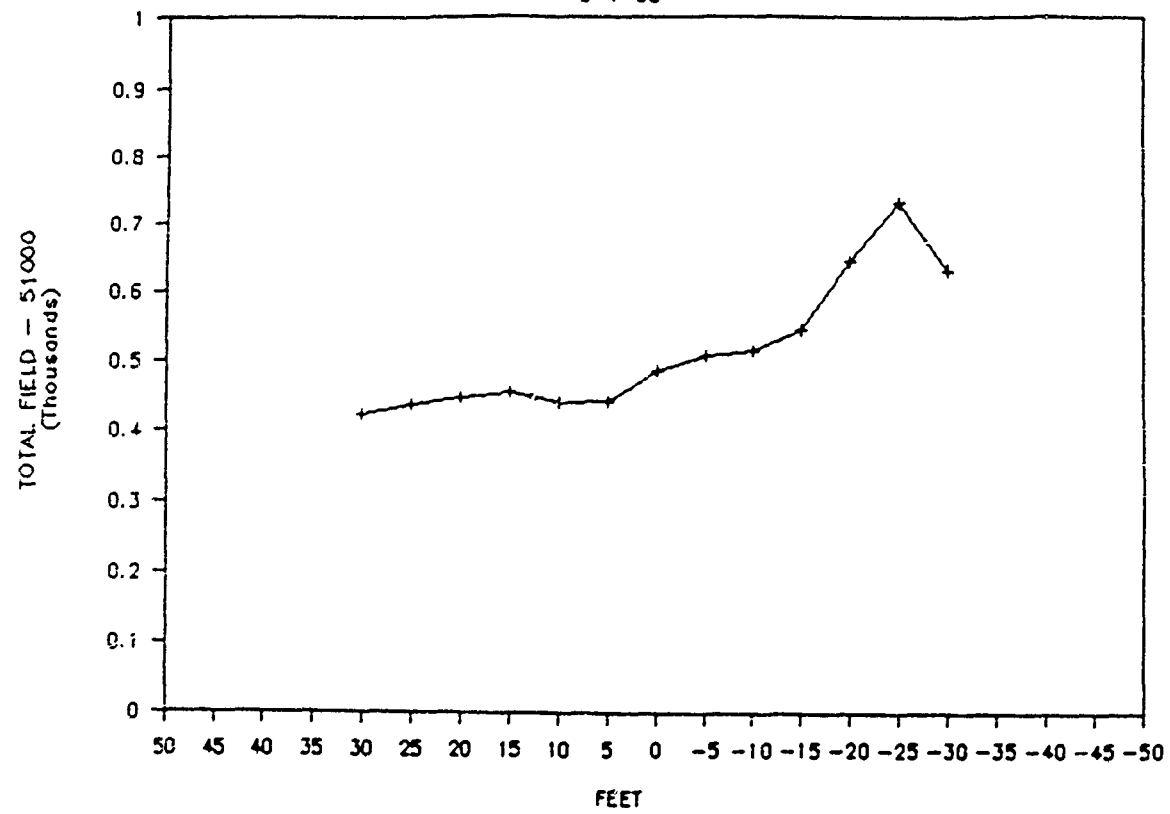
C-T-32



H-52

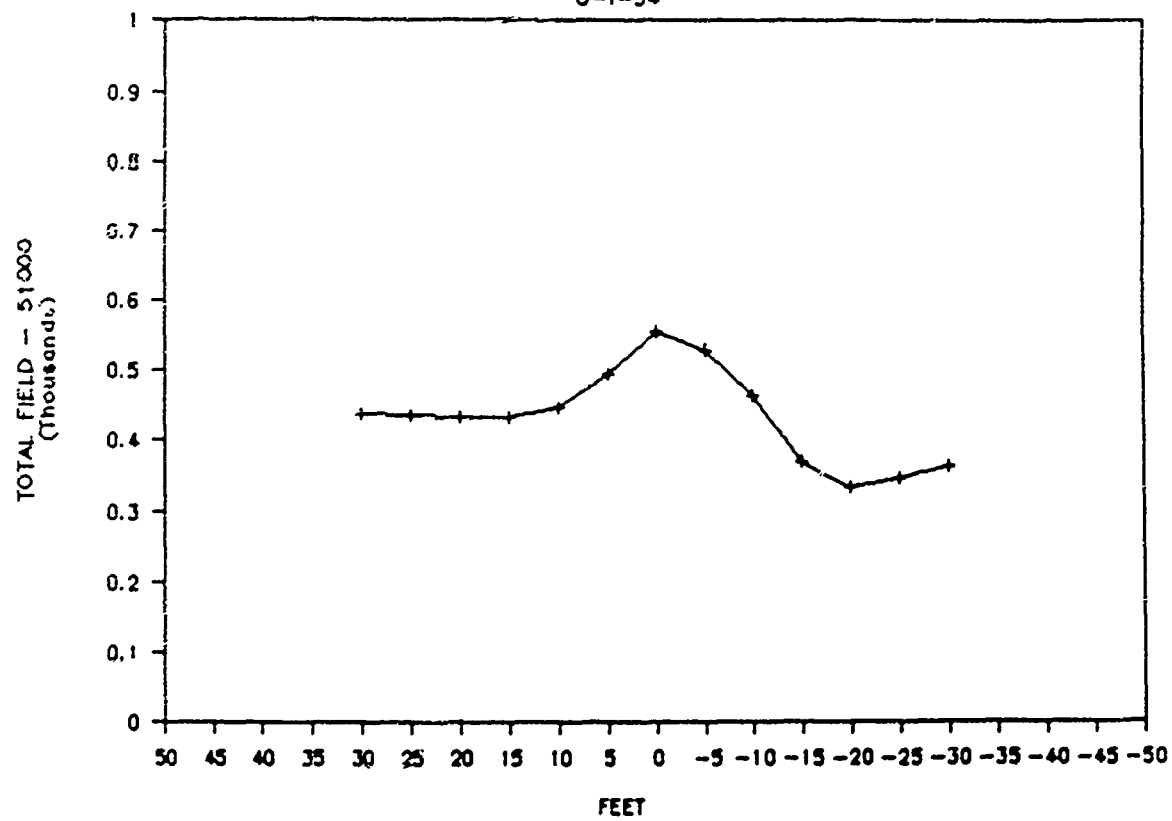
BEALE AFB

C-T-33



BEALE AFB

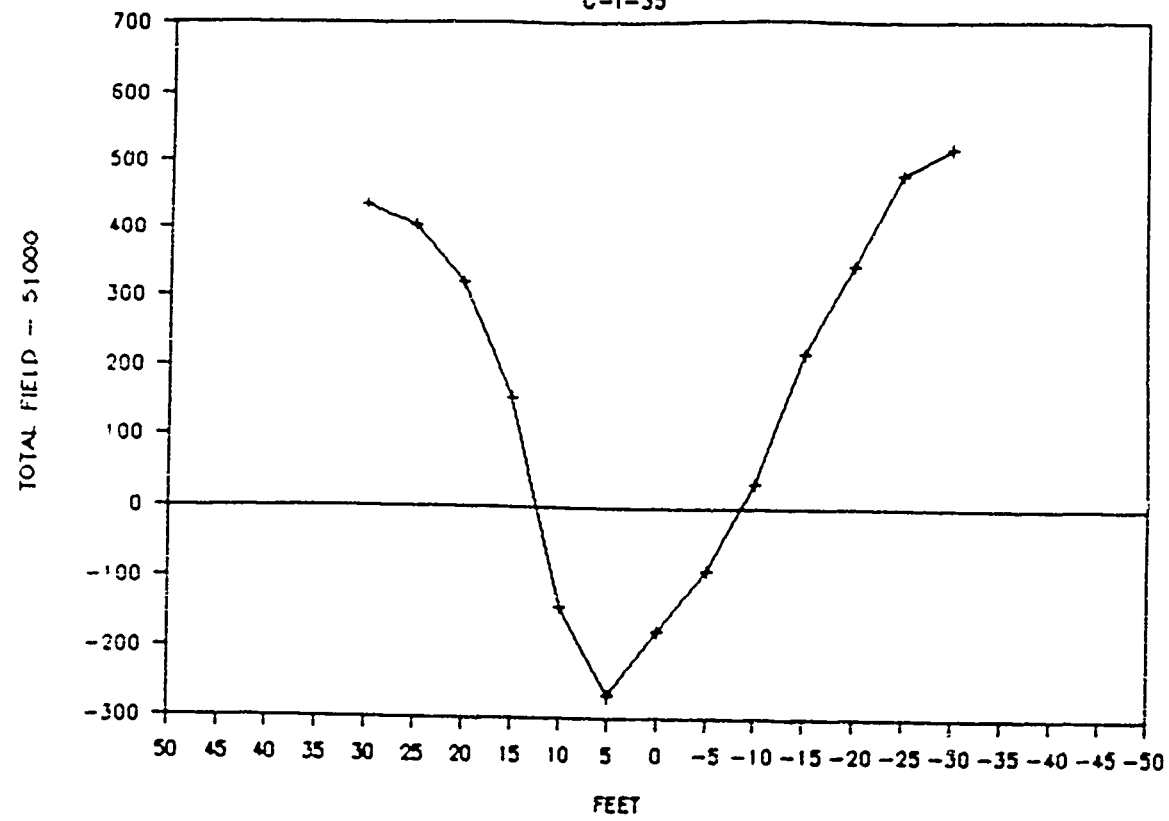
C-T-34



H-53

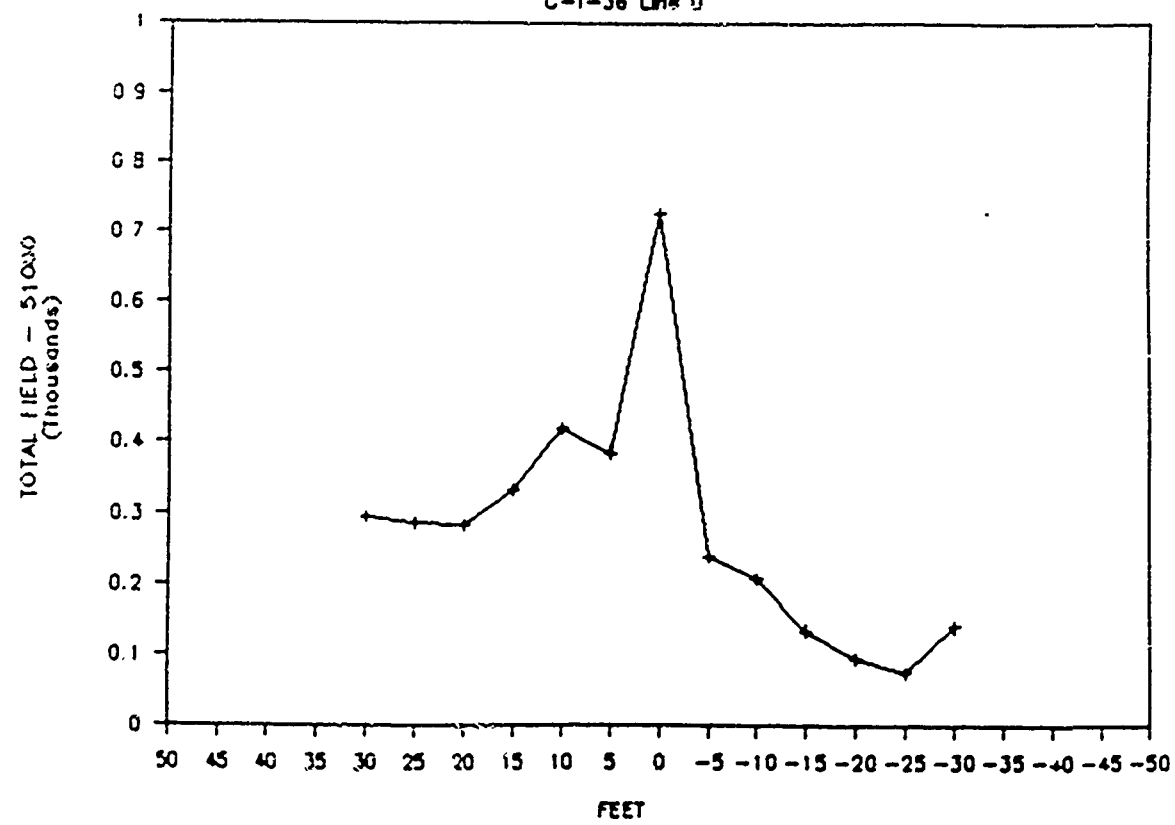
BEALE AFB

C-T-35

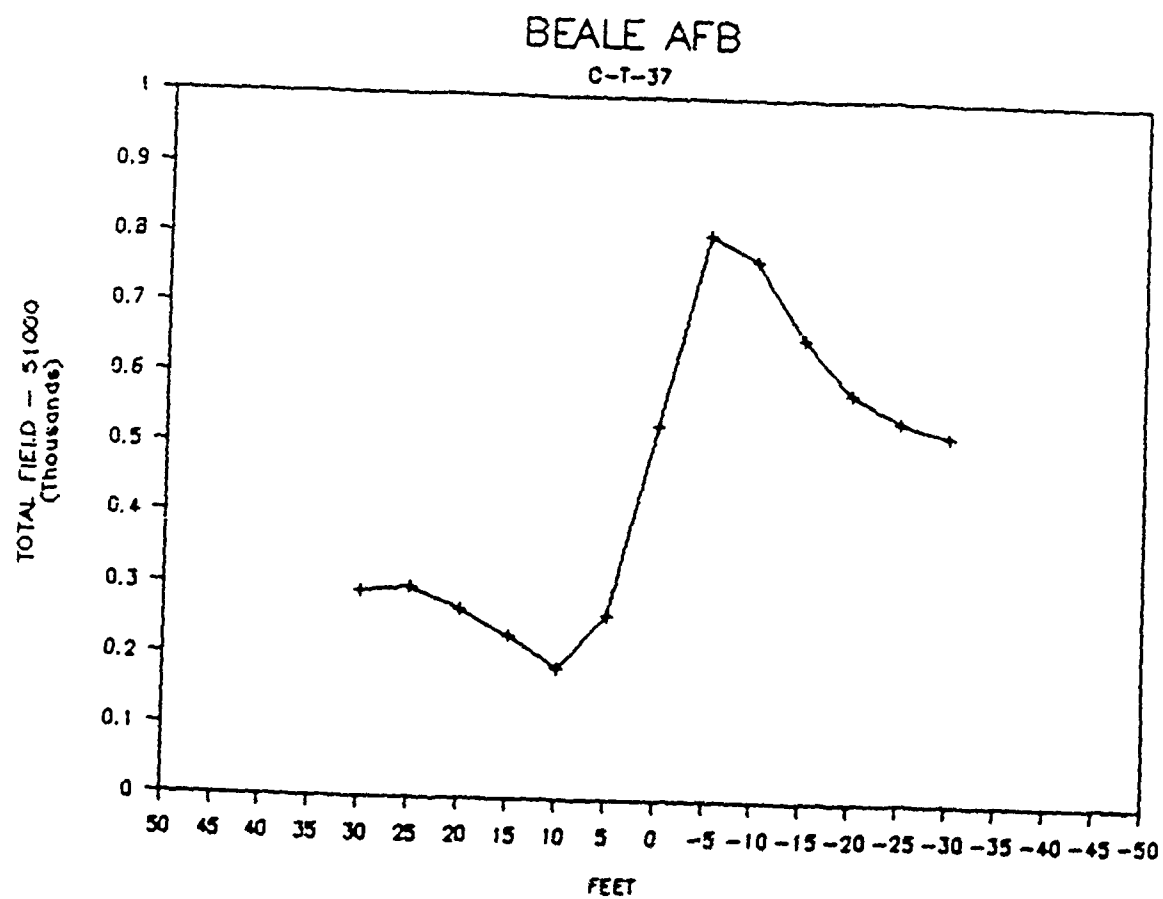
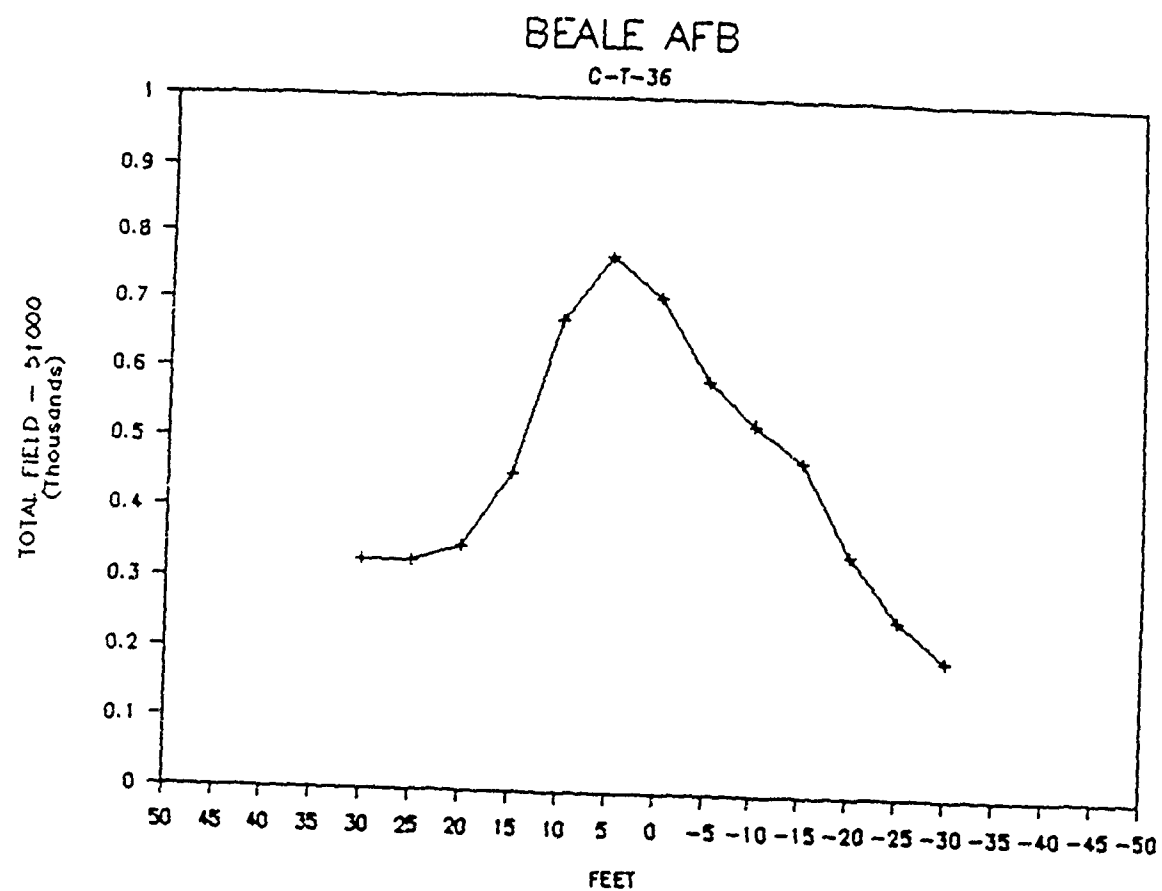


BEALE AFB

C-T-36 Line 9



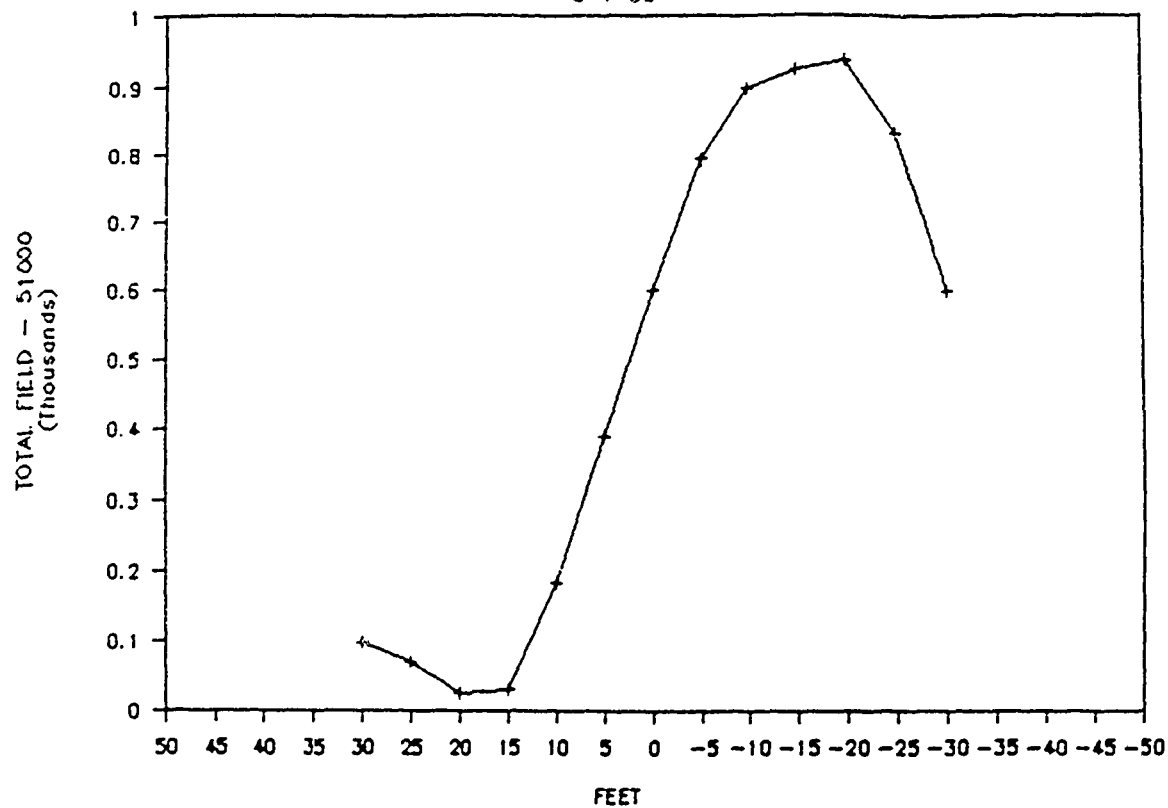
H-54



H-55

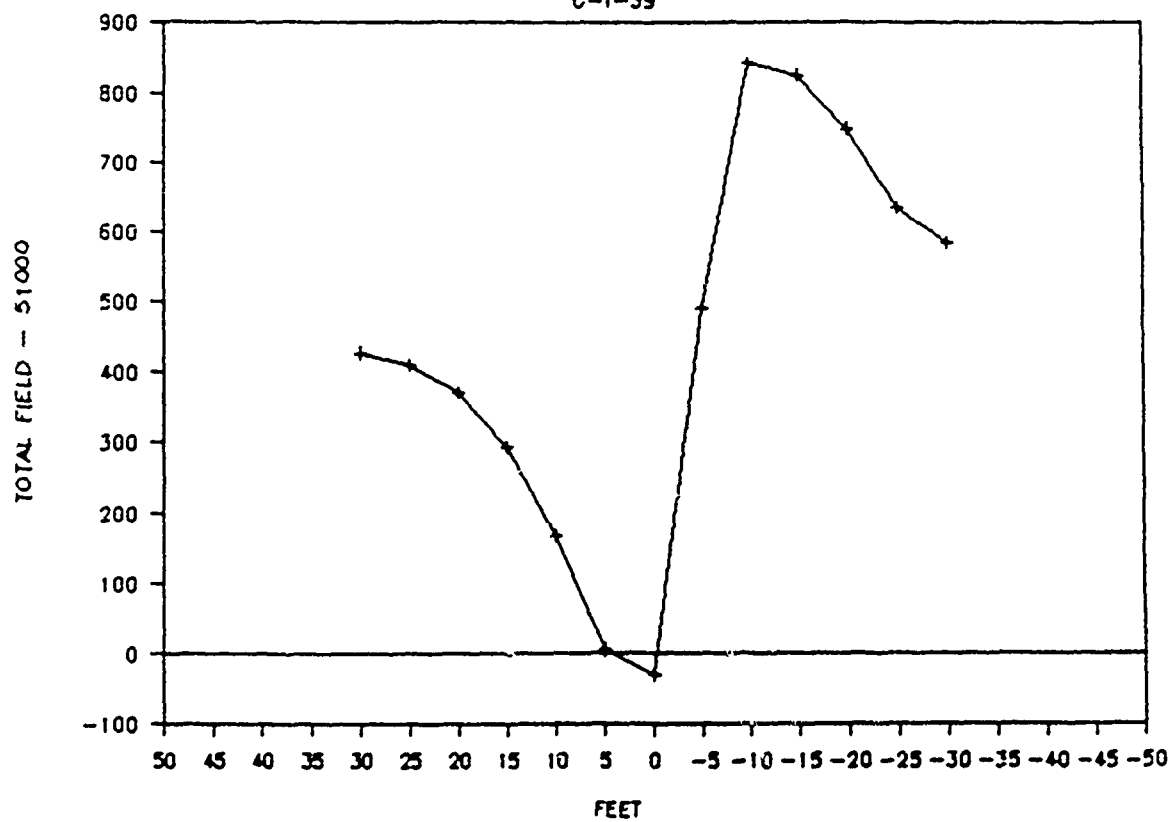
BEALE AFB

C-T-38



BEALE AFB

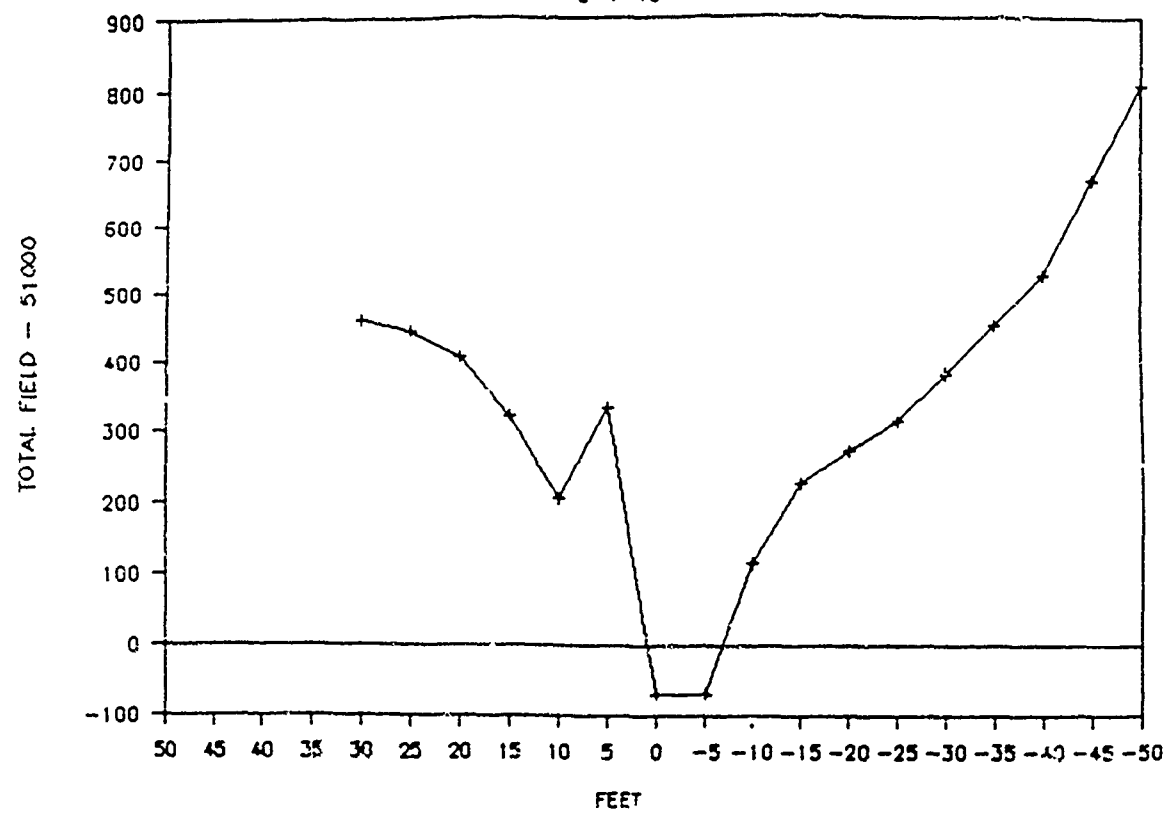
C-T-39



H-56

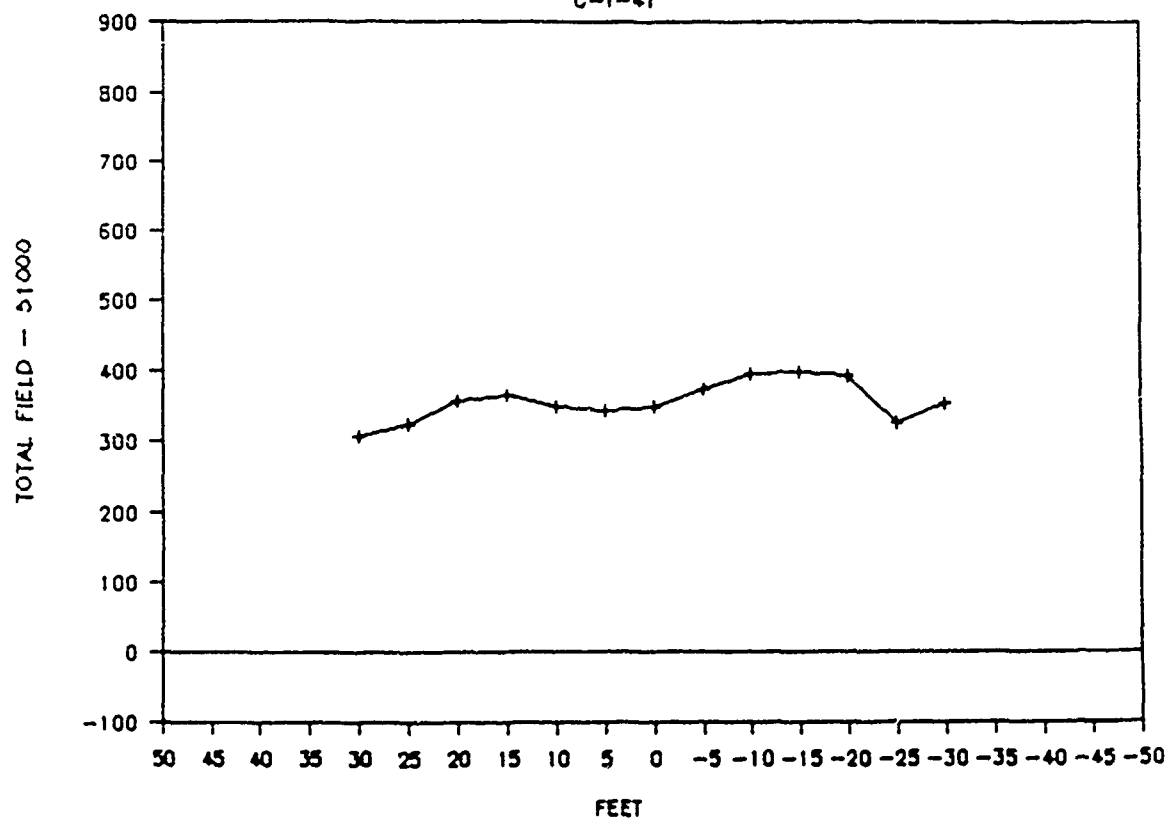
BEALE AFB

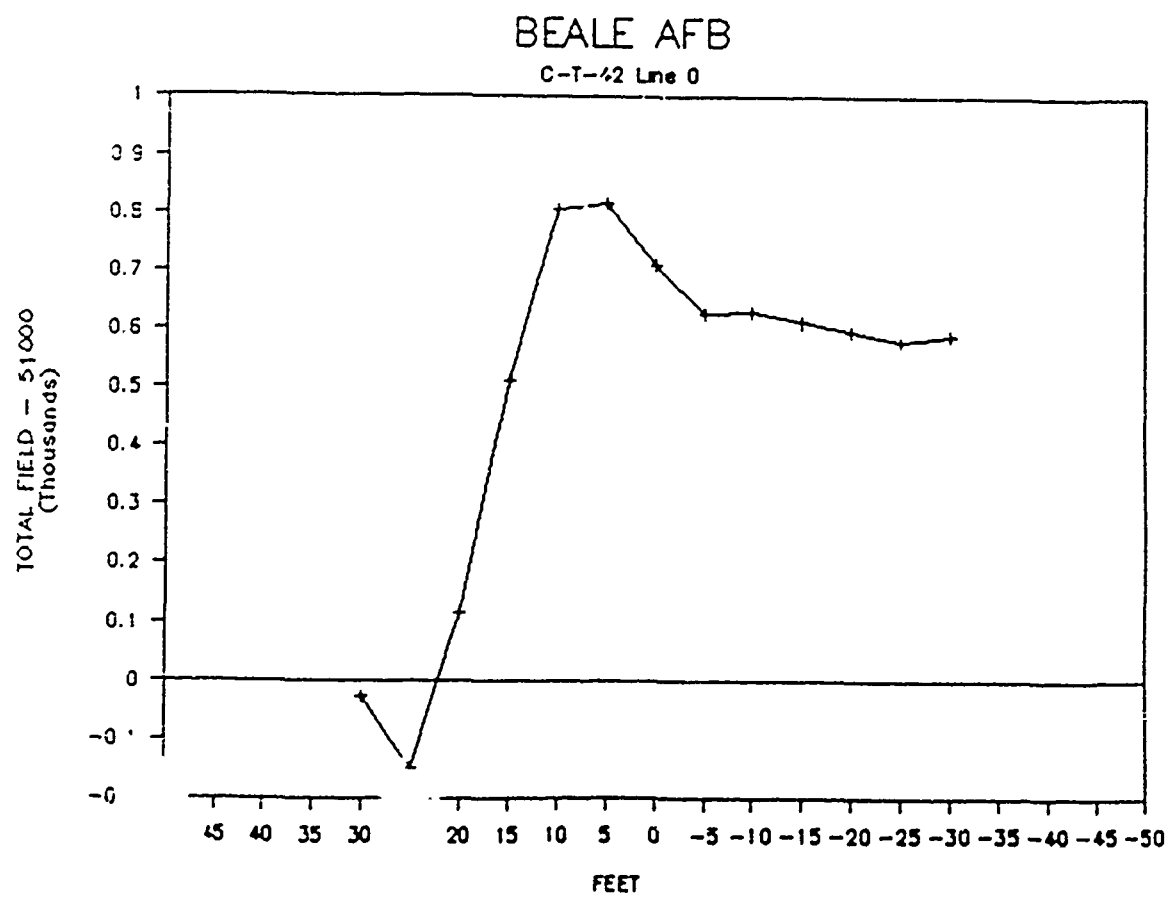
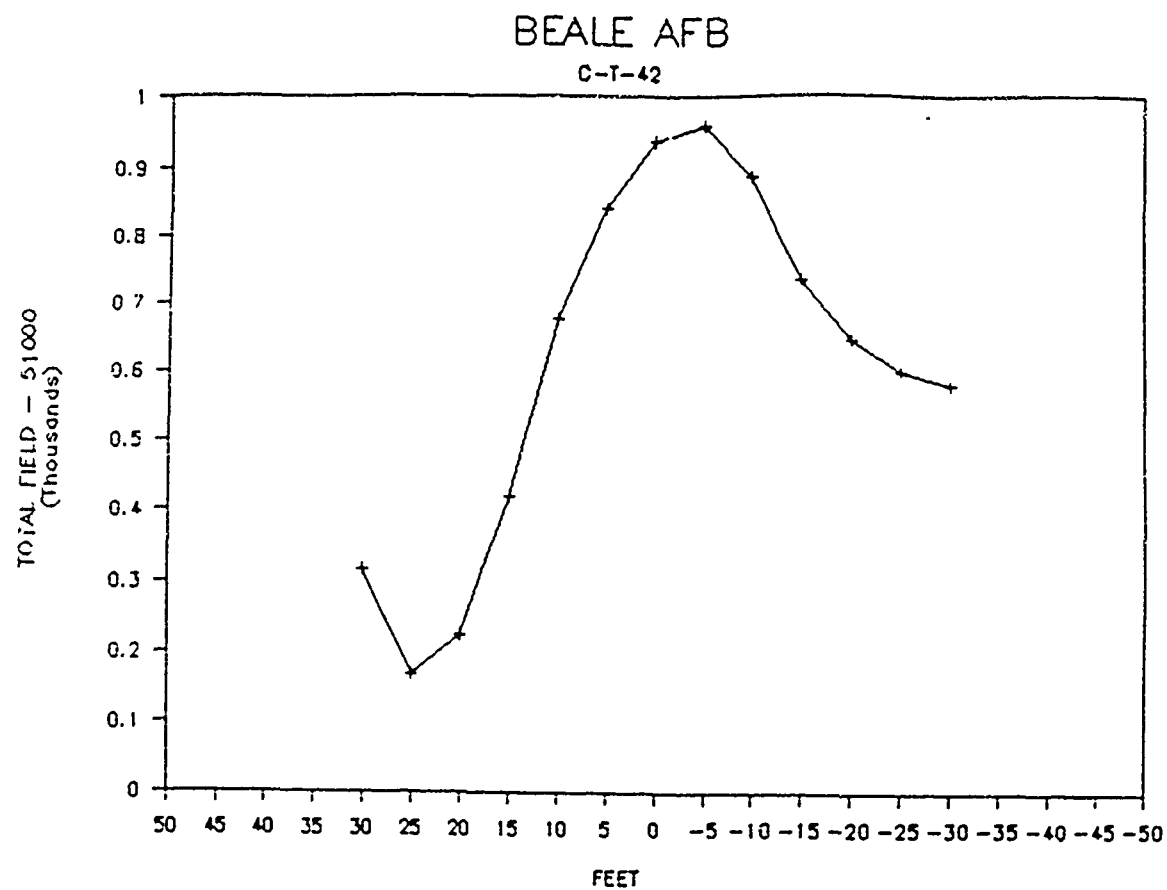
C-T-40



BEALE AFB

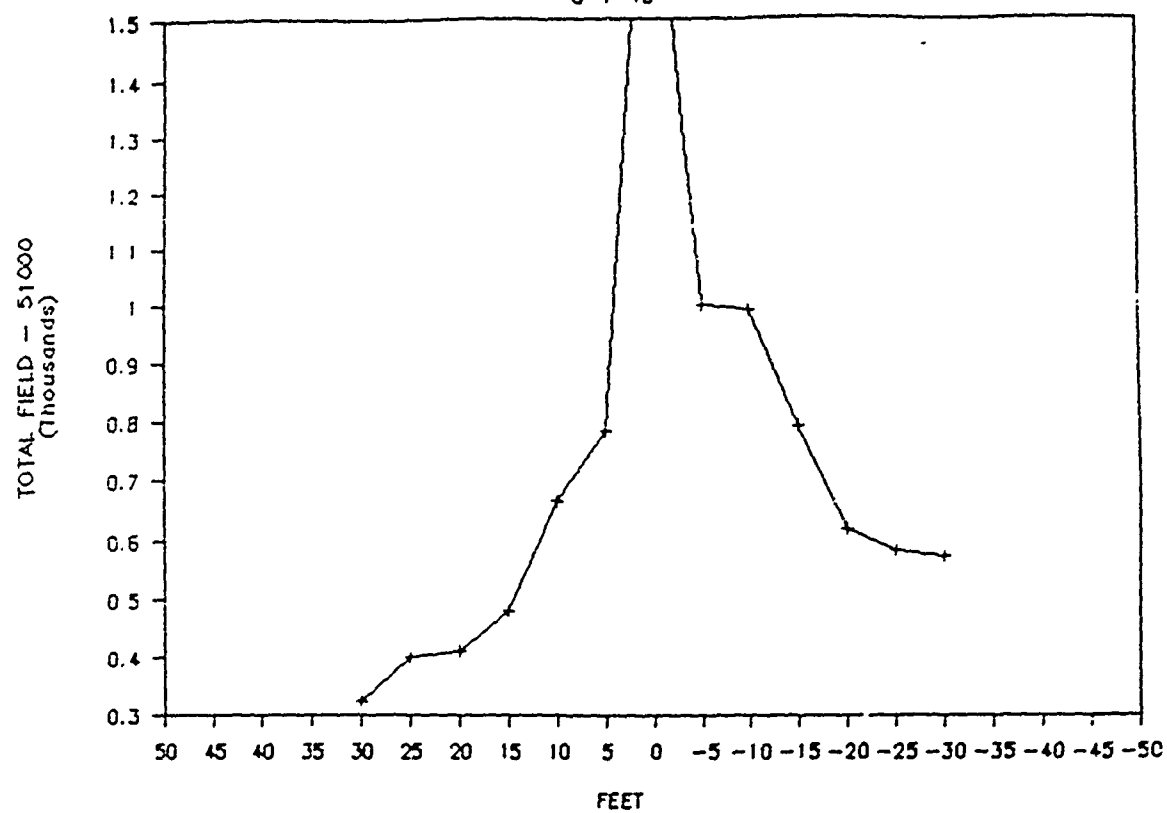
C-T-41





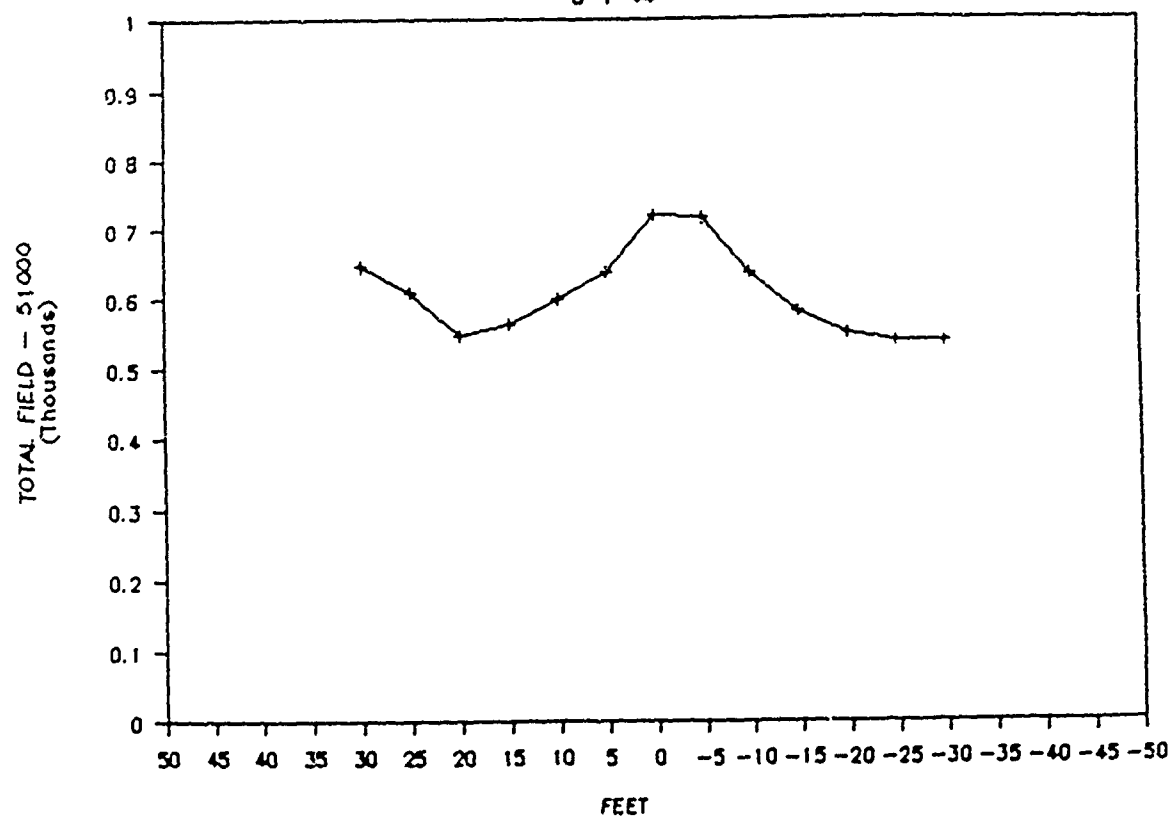
BEALE AFB

C-T-43



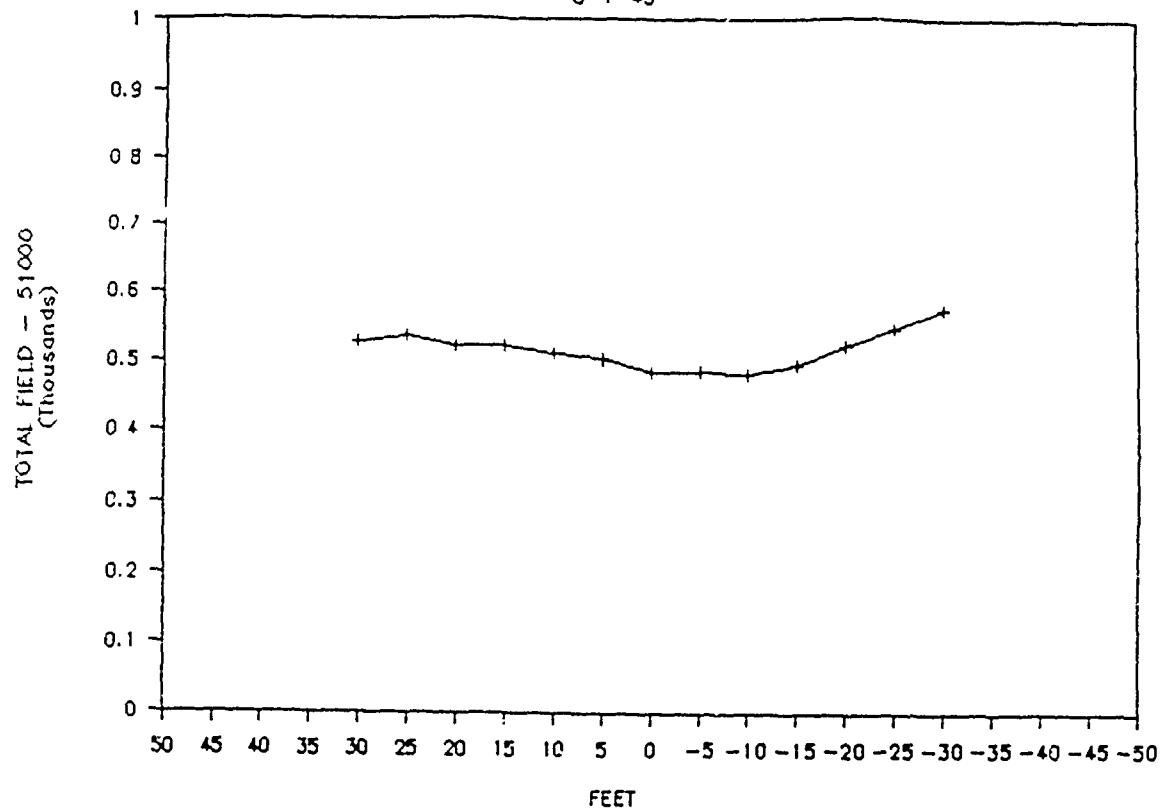
BEALE AFB

C-T-44



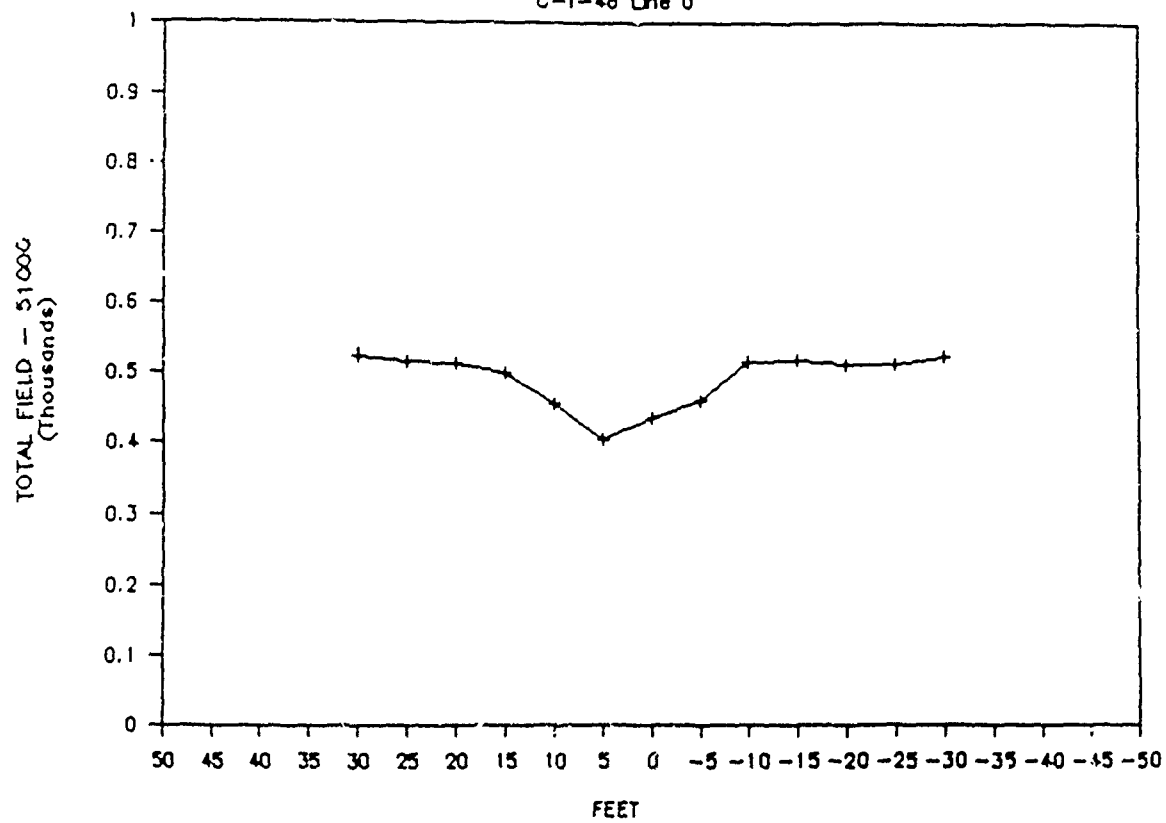
BEALE AFB

C-T-45



BEALE AFB

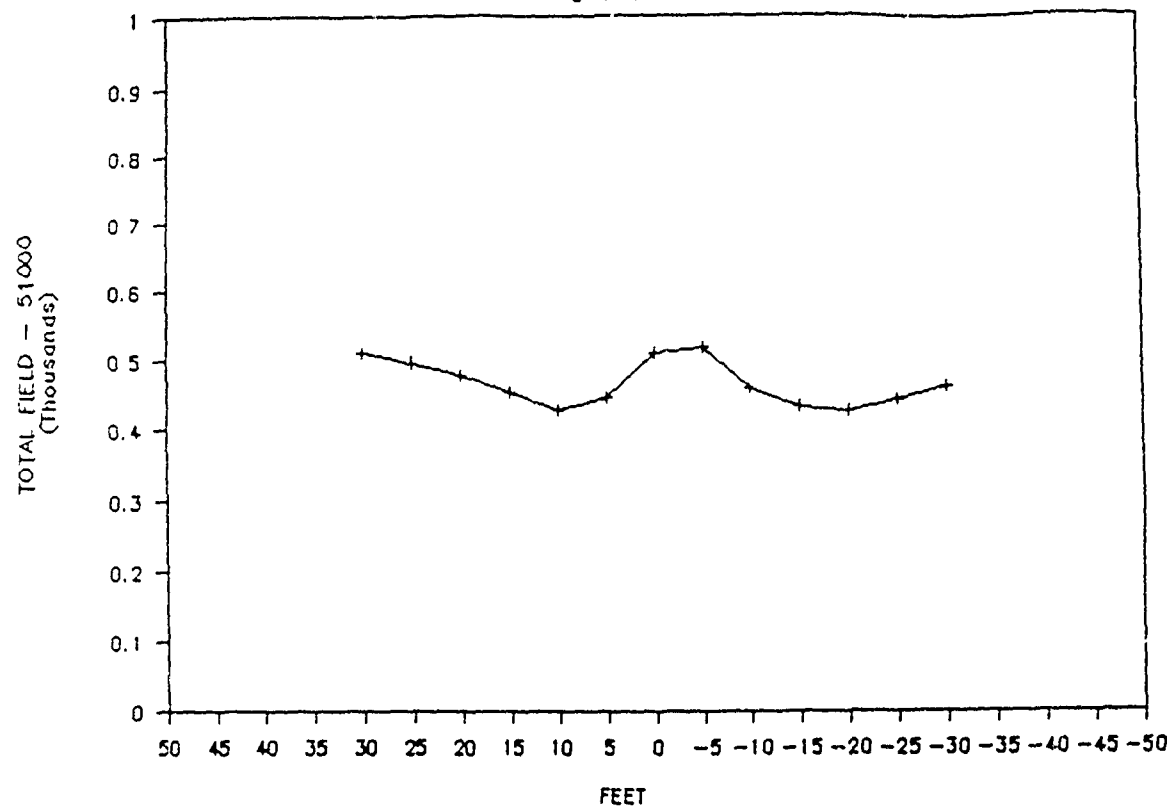
C-T-46 Line 0



H-60

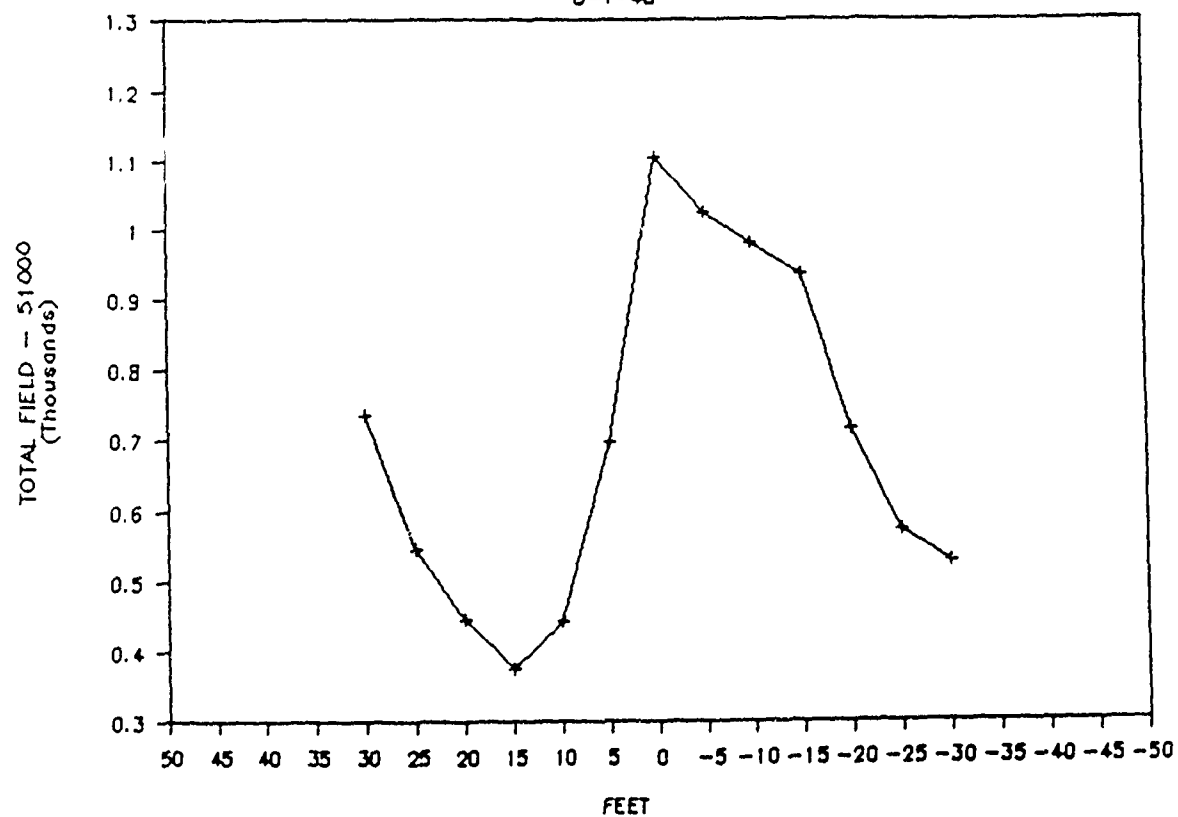
BEALE AFB

C-T-47



BEALE AFB

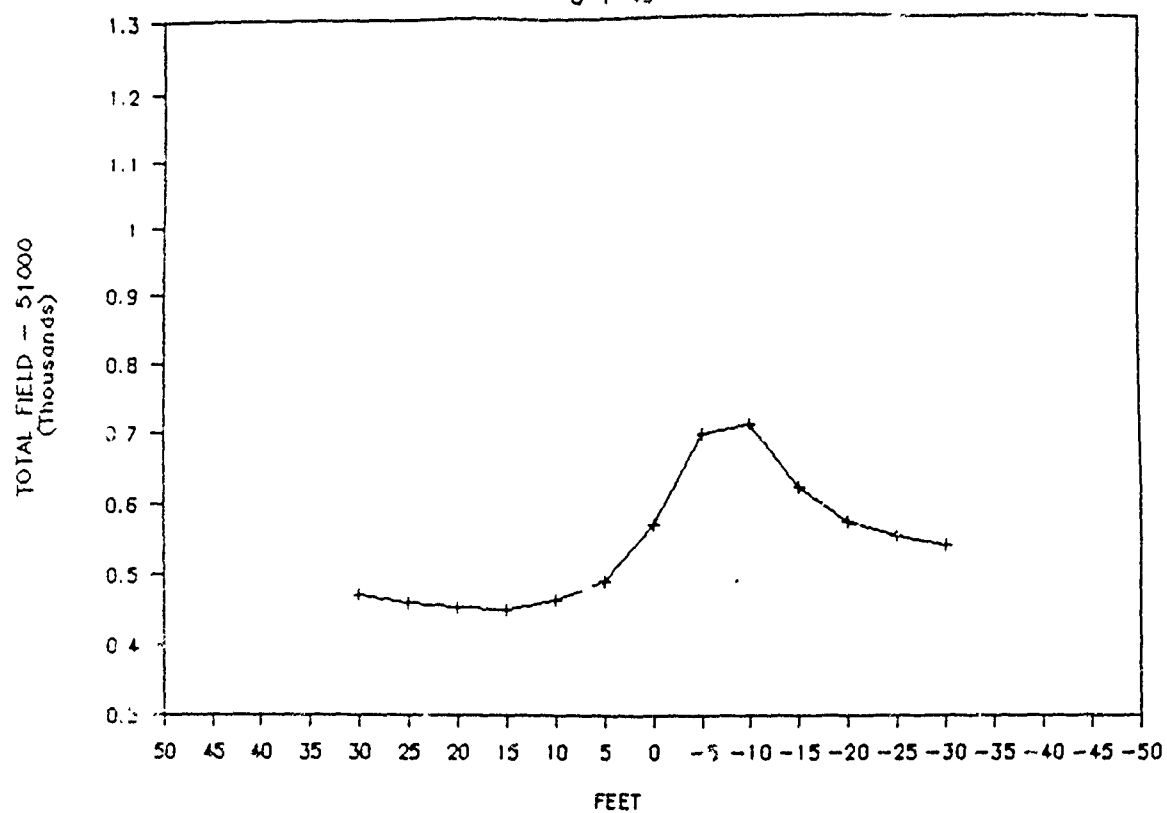
C-T-48



H-61

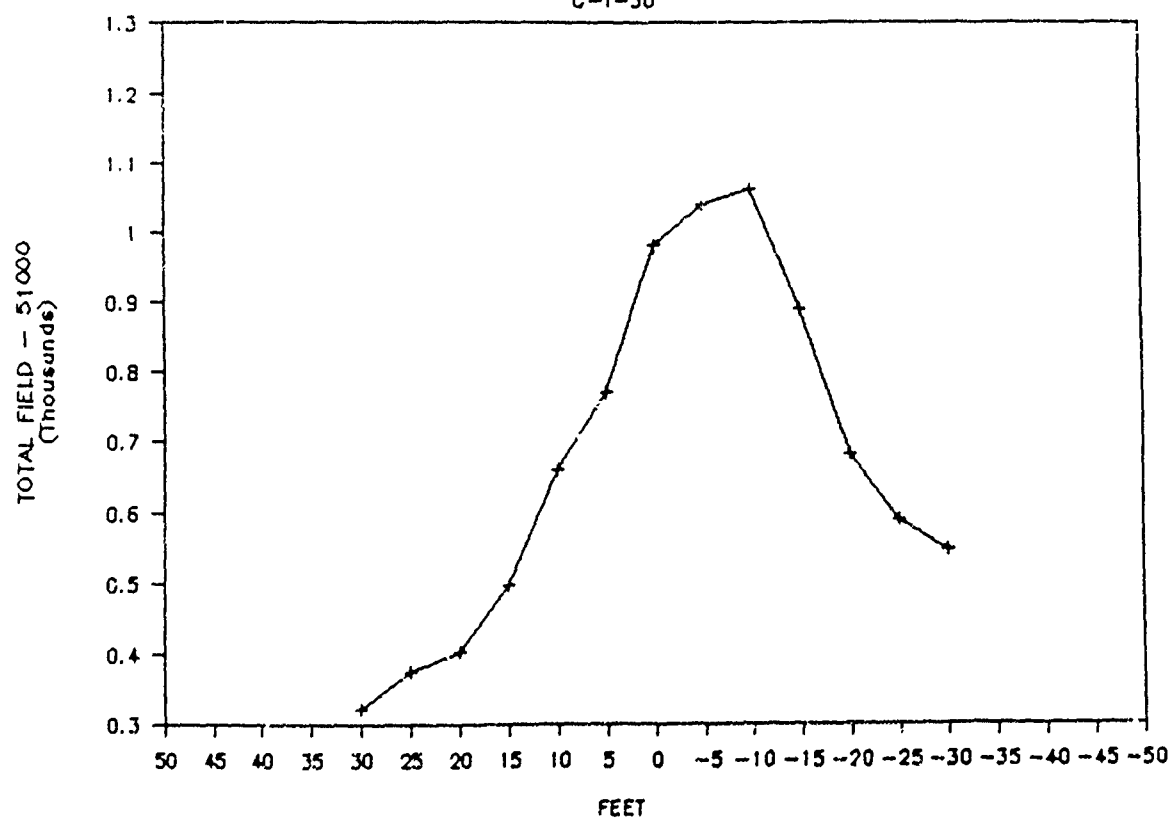
BEALE AFB

C-T-49



BEALE AFB

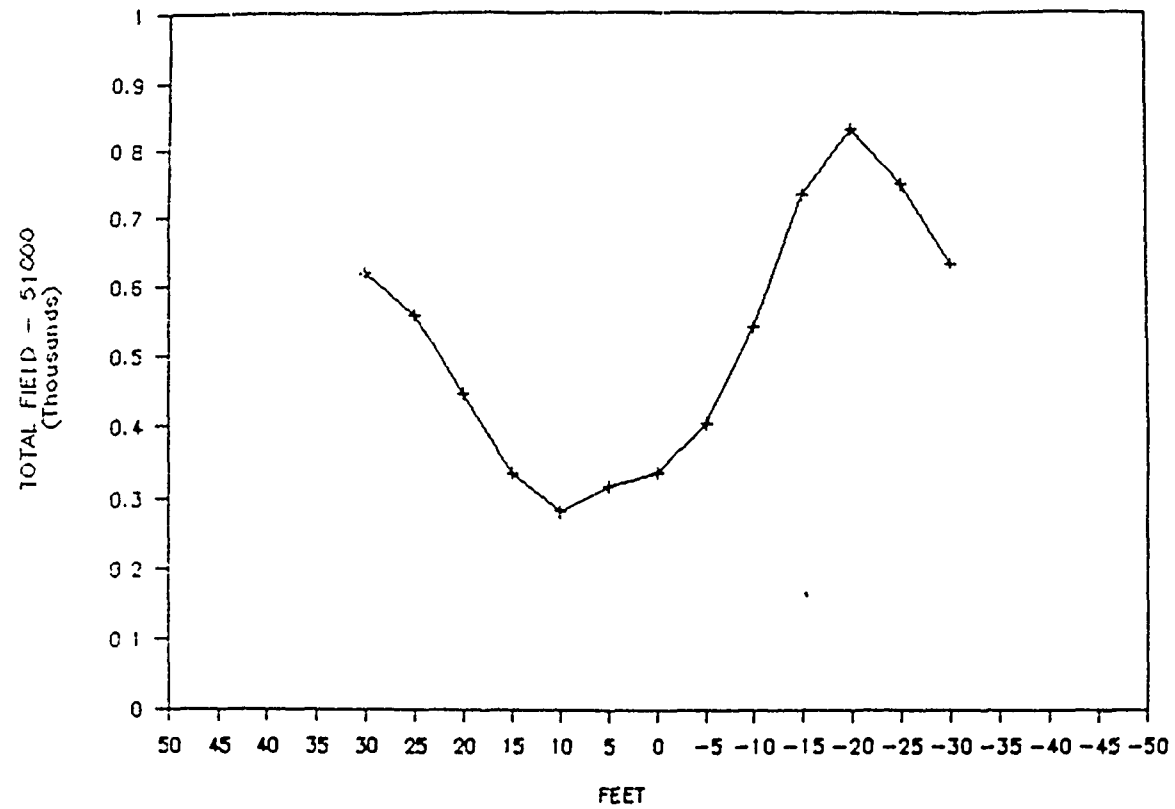
C-T-50



H-62

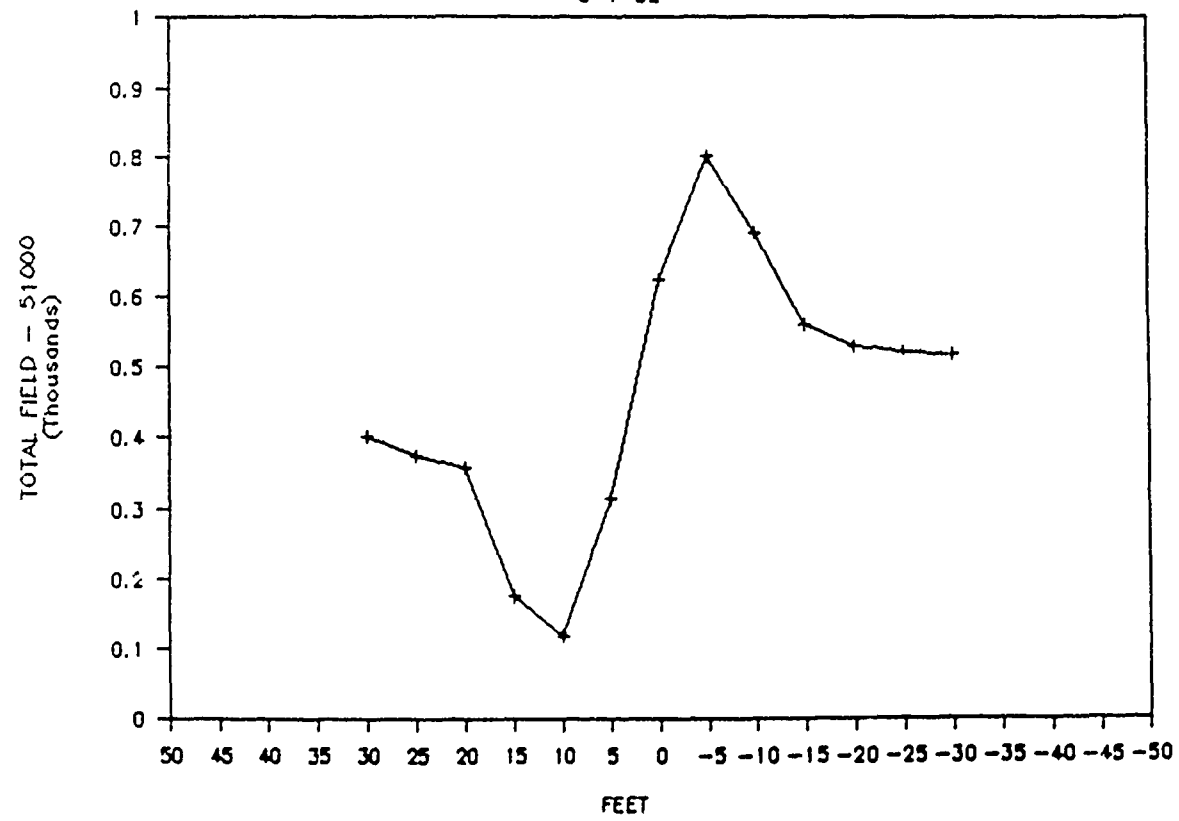
BEALE AFB

C-T-51



BEALE AFB

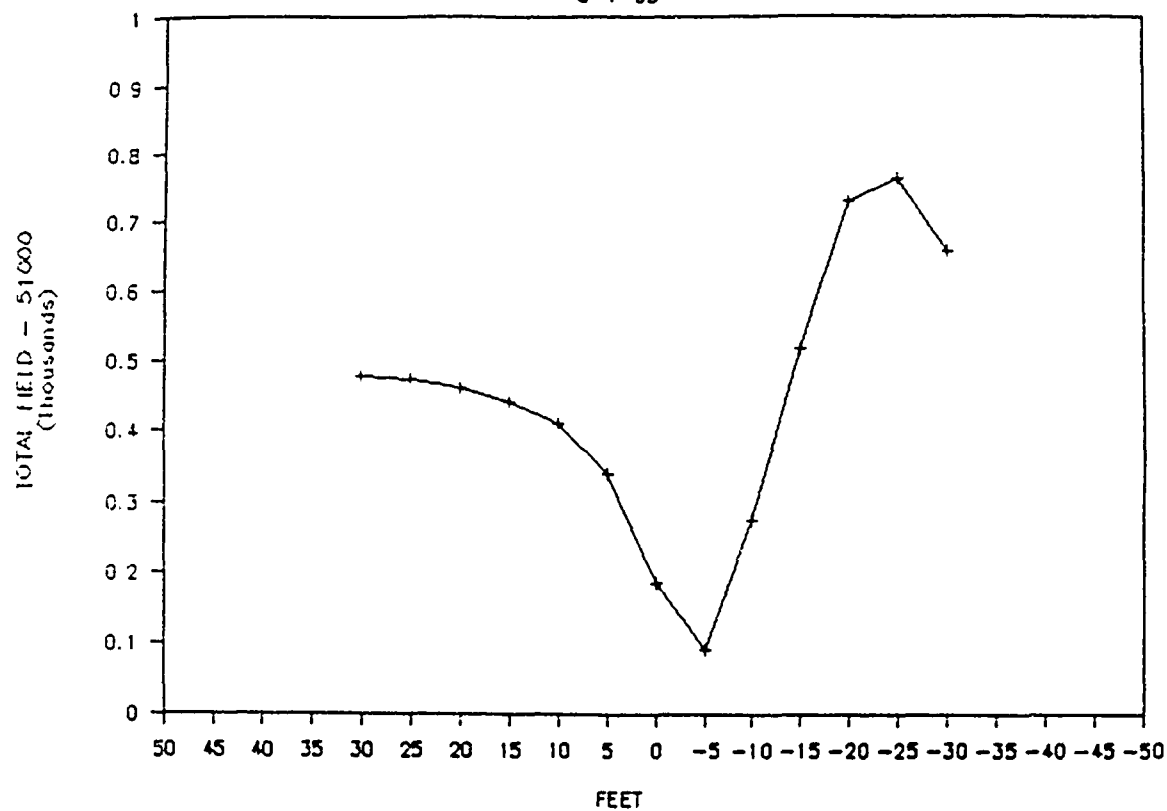
C-T-52



H-63

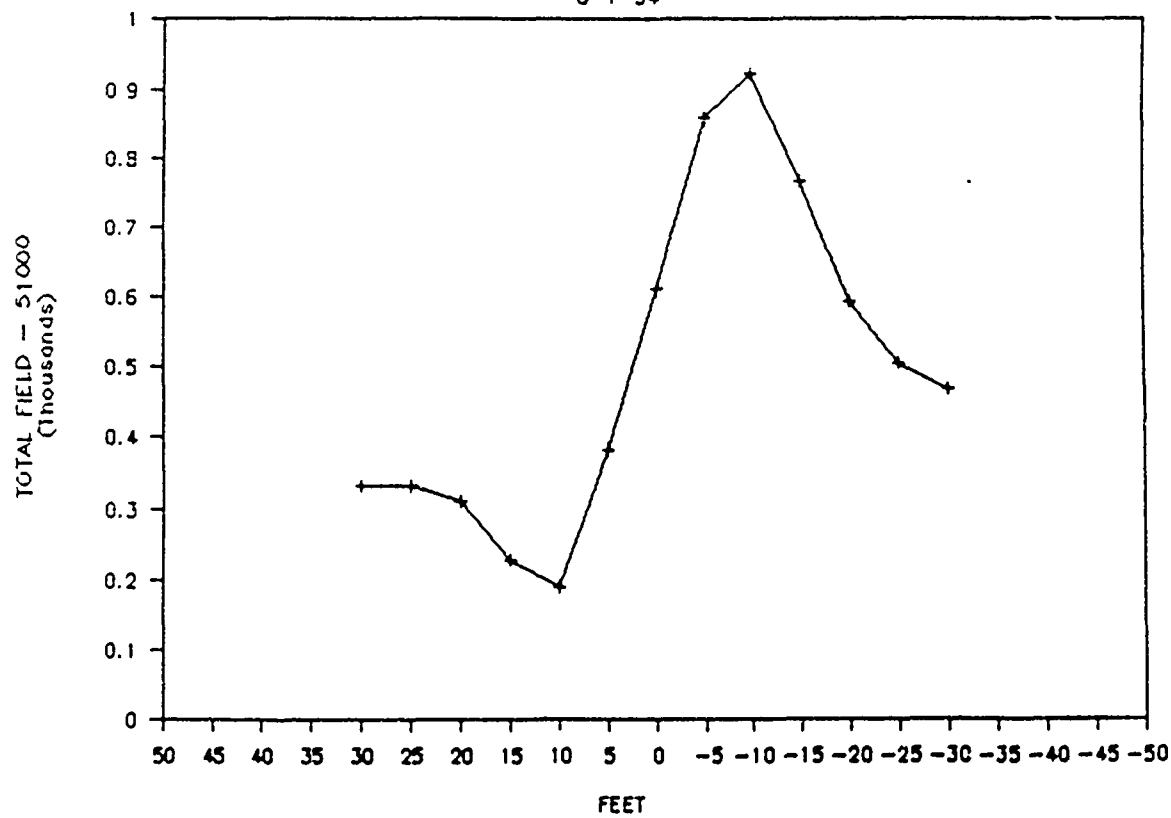
BEALE AFB

C-T-53



BEALE AFB

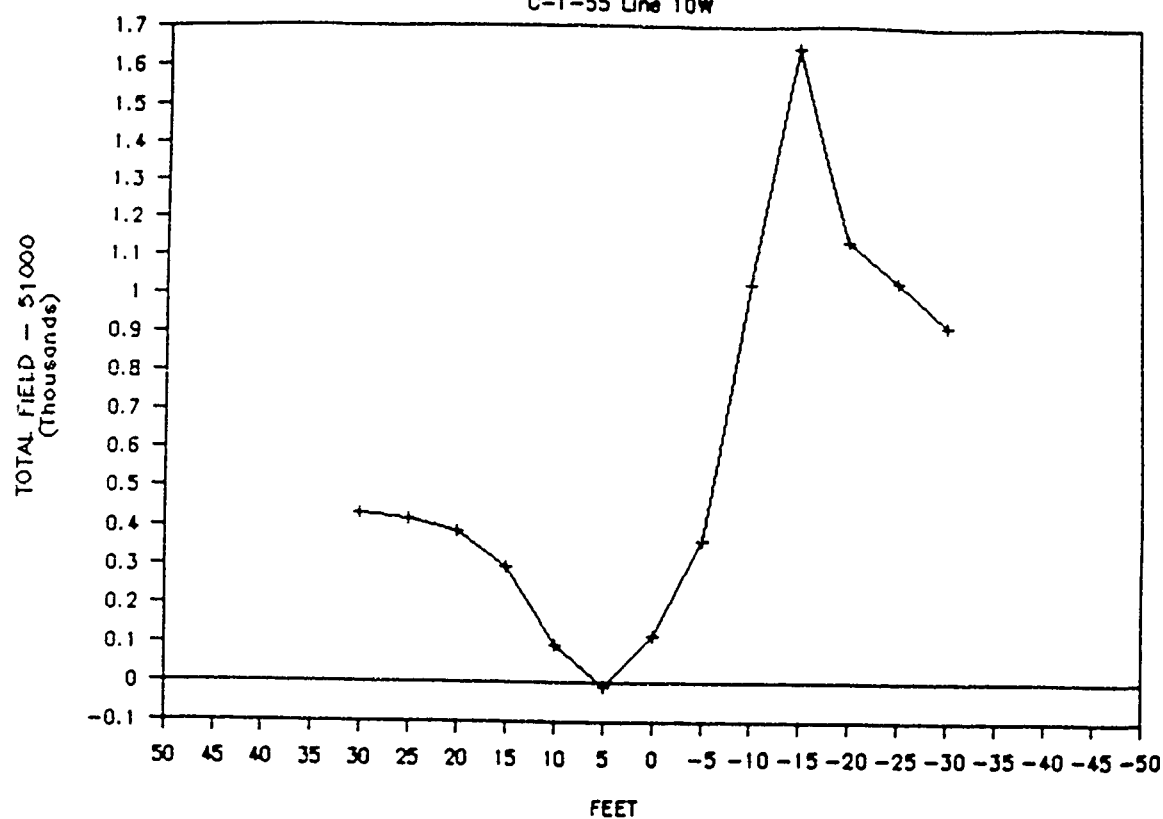
C-T-54



H-64

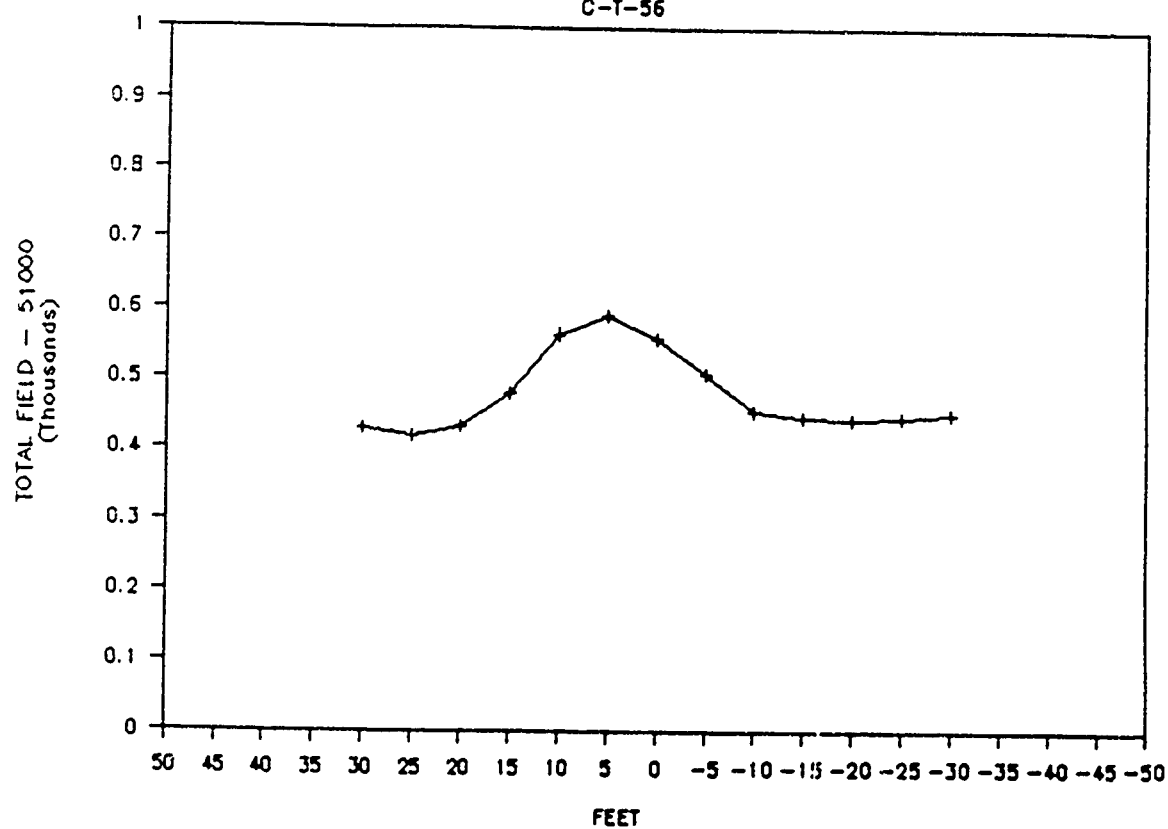
BEALE AFB

C-T-55 Line 10W



BEALE AFB

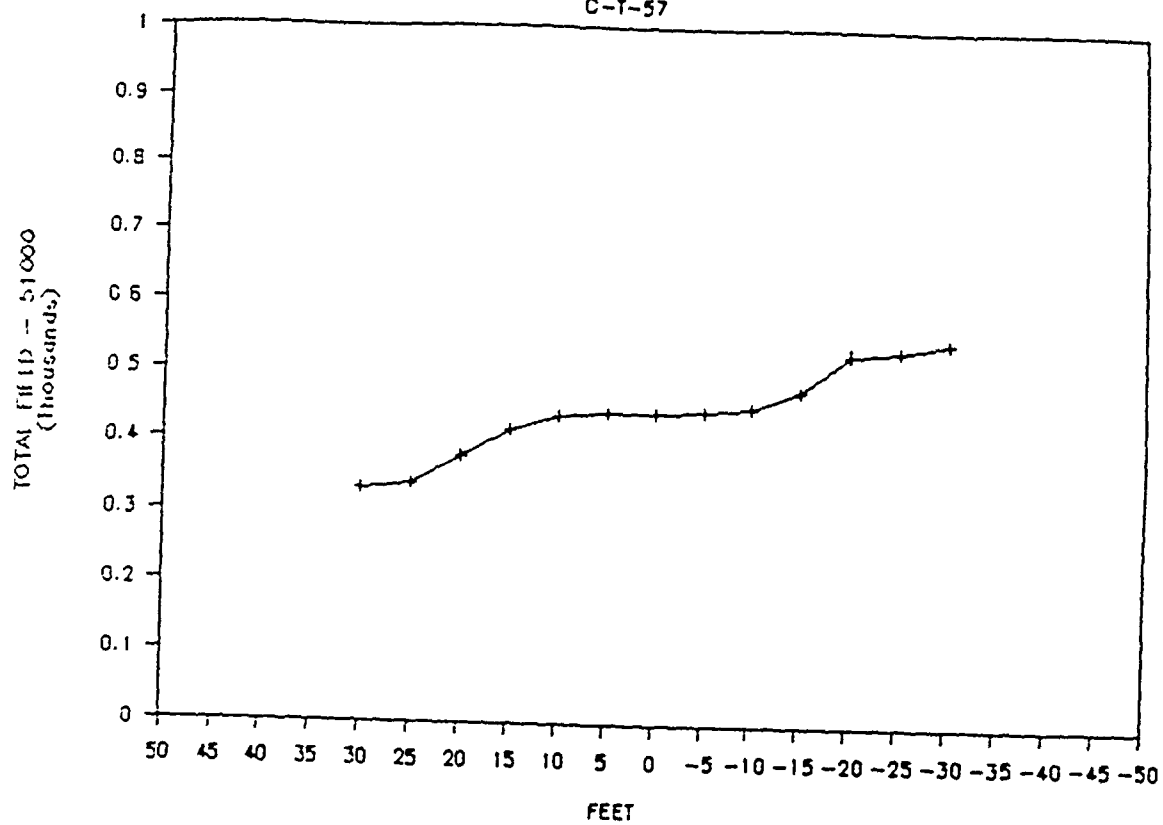
C-T-56



H-65

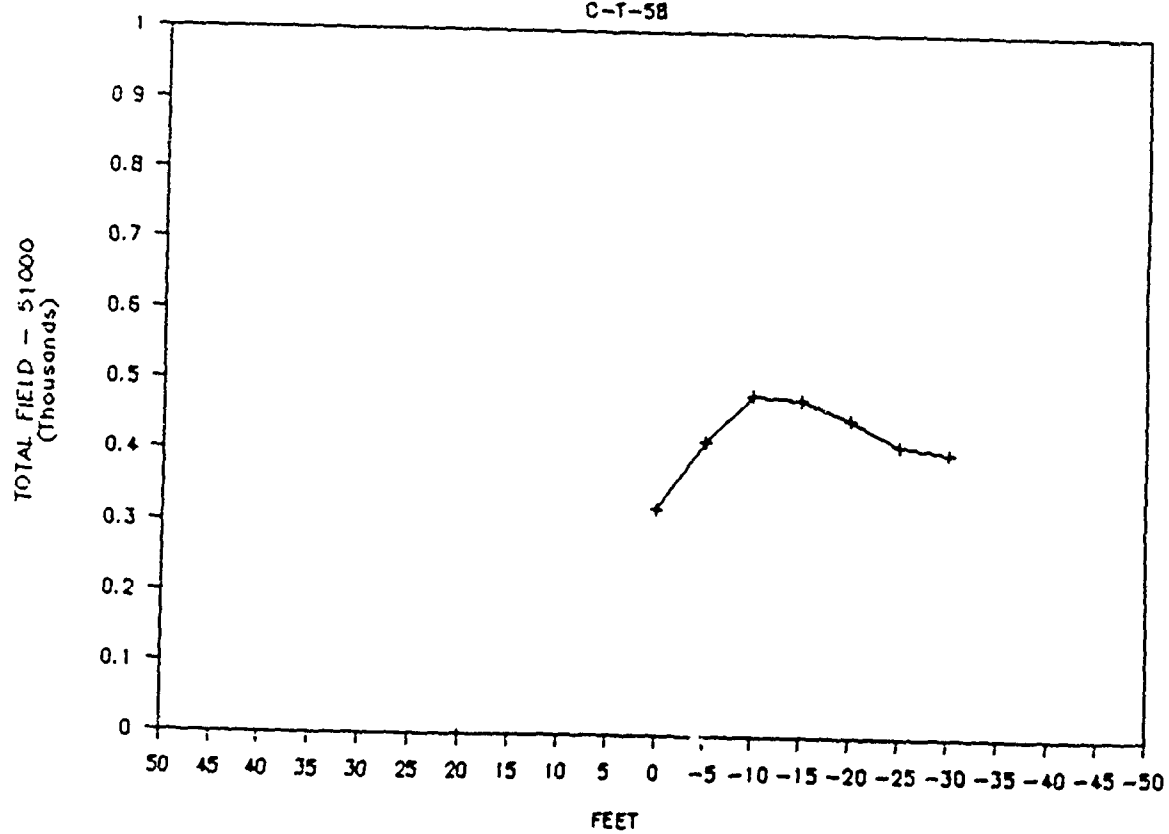
BEALE AFB

C-T-57



BEALE AFB

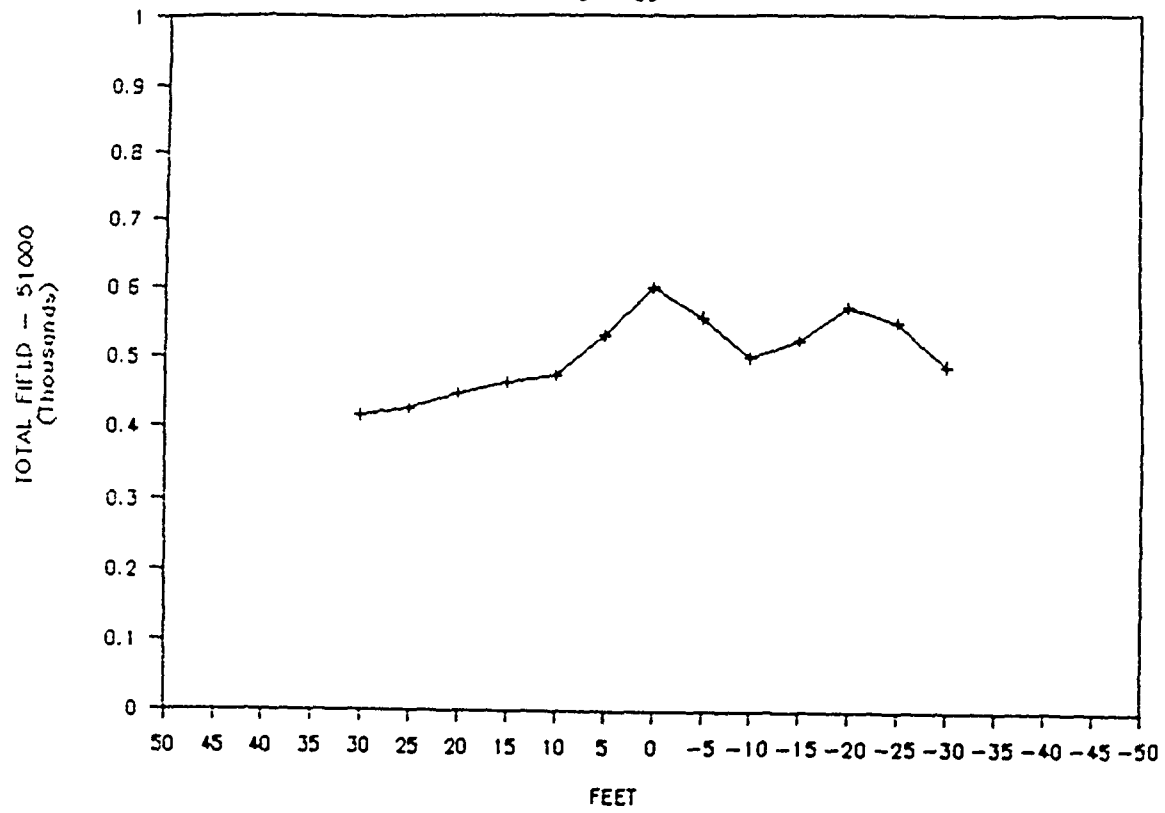
C-T-58



H-66

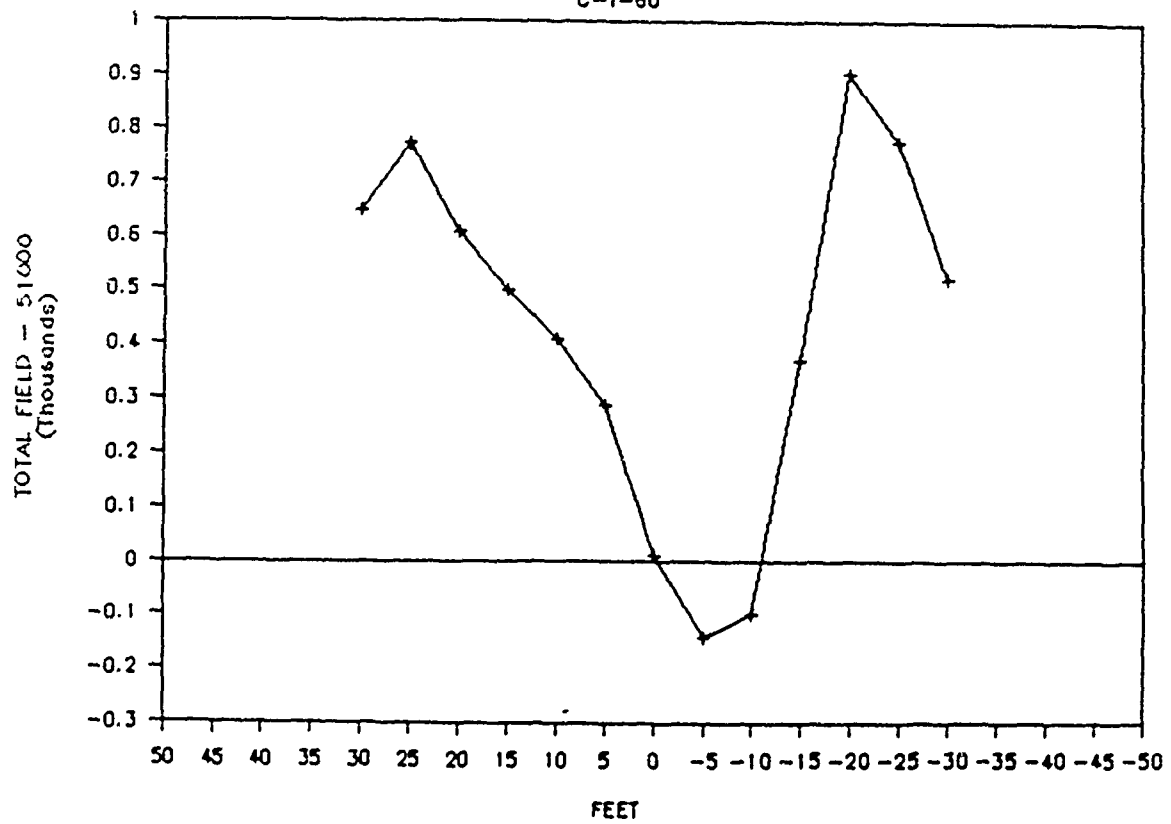
BEALE AFB

C-T-59



BEALE AFB

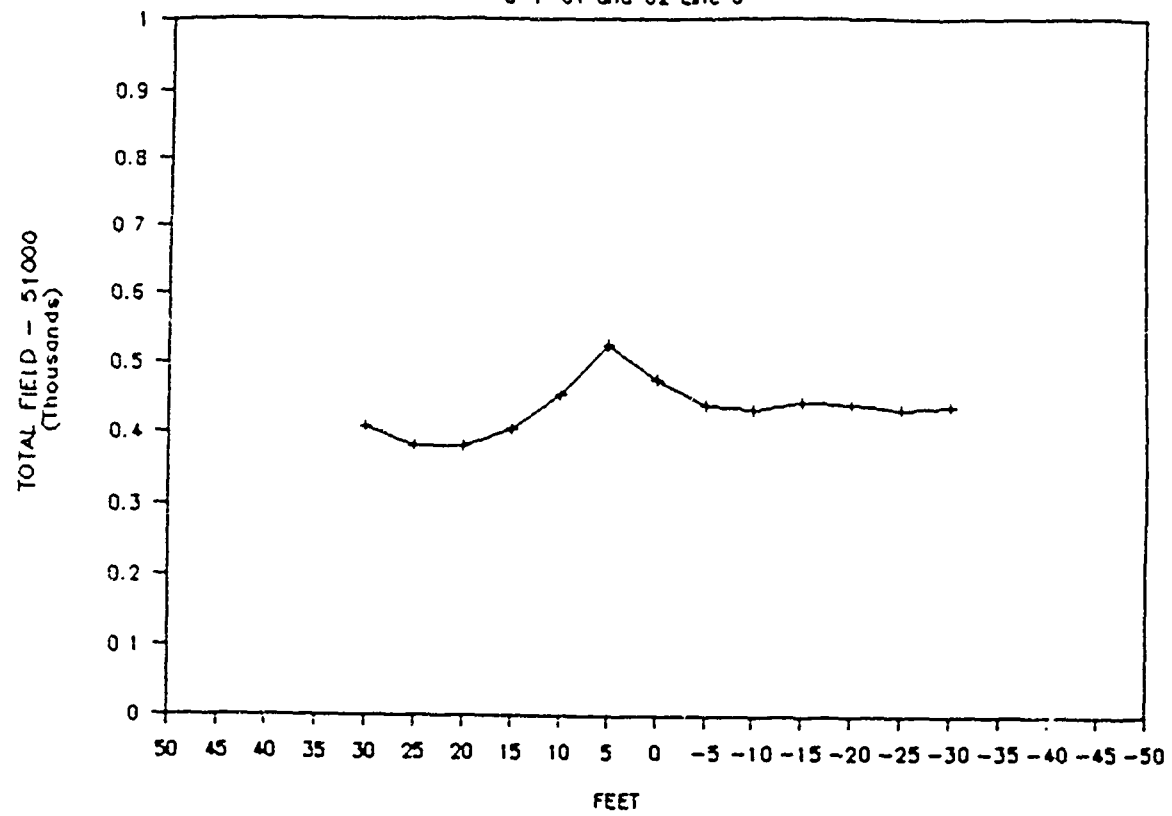
C-T-60



H-67

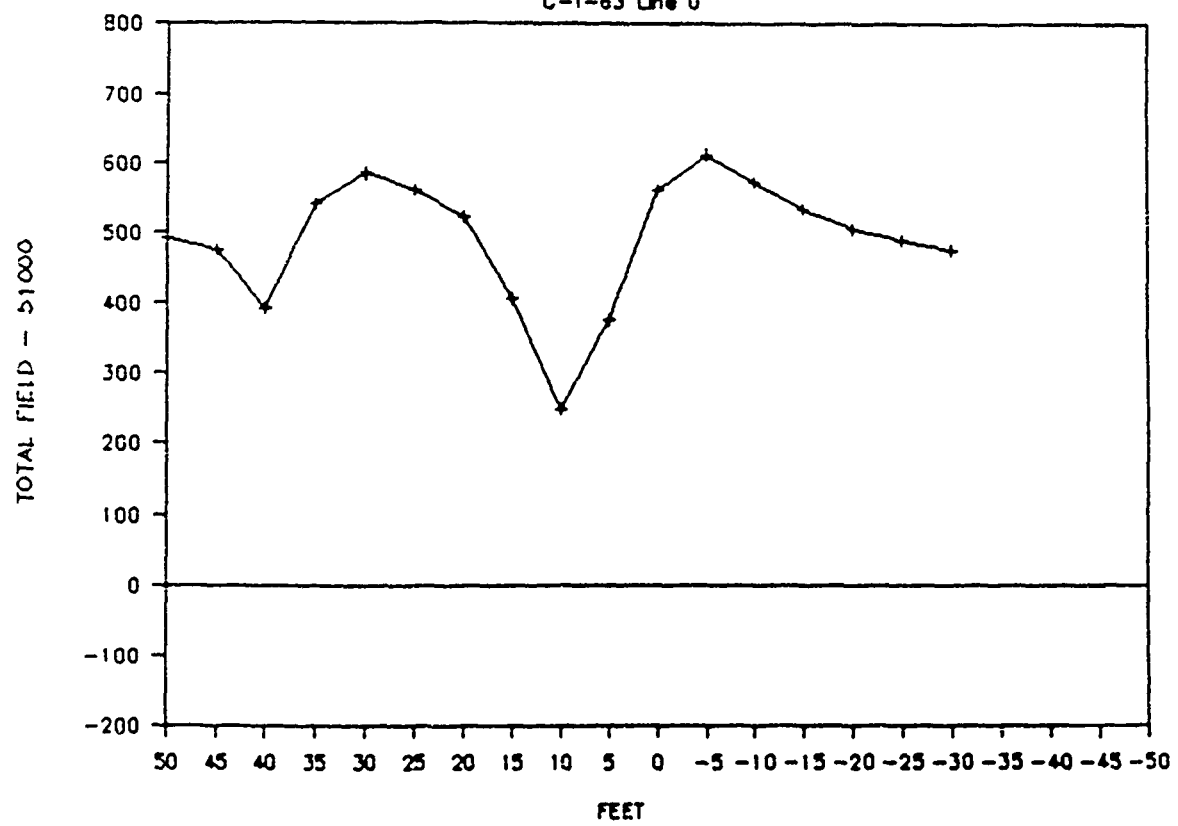
BEALE AFB

C-T-61 and 62 Line 0



BEALE AFB

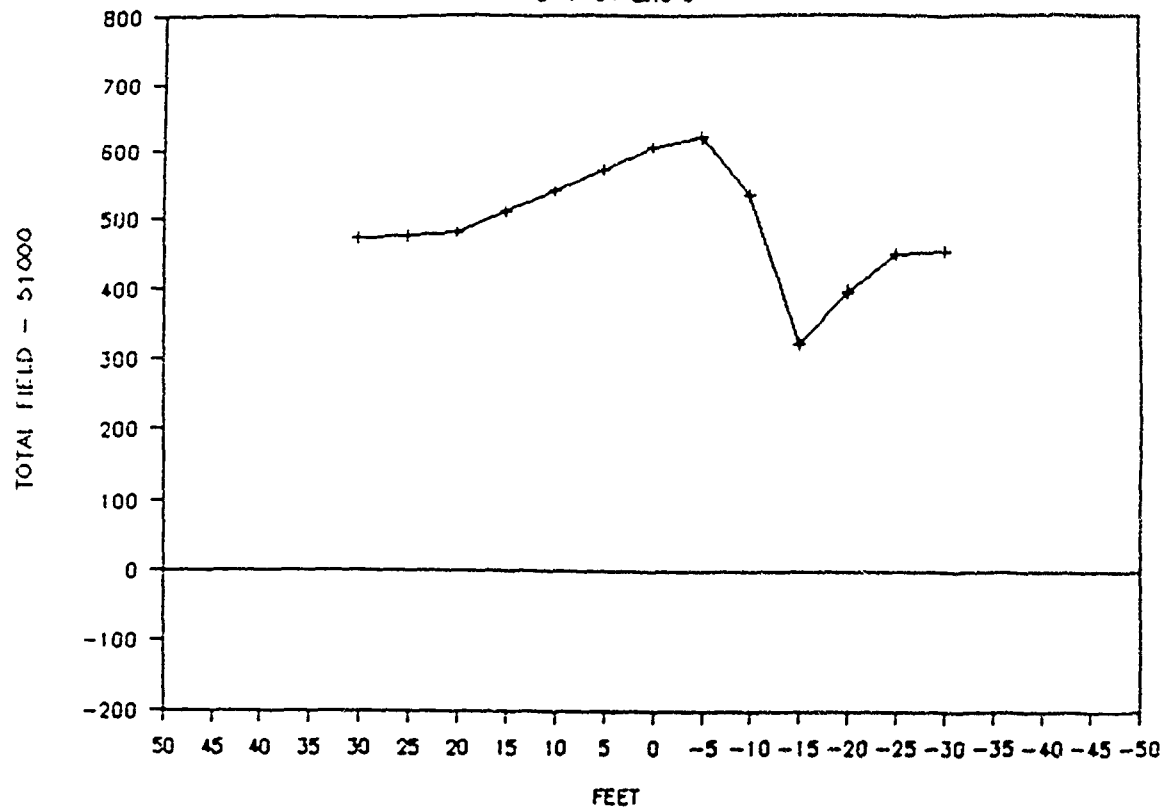
C-T-63 Line 0



H-68

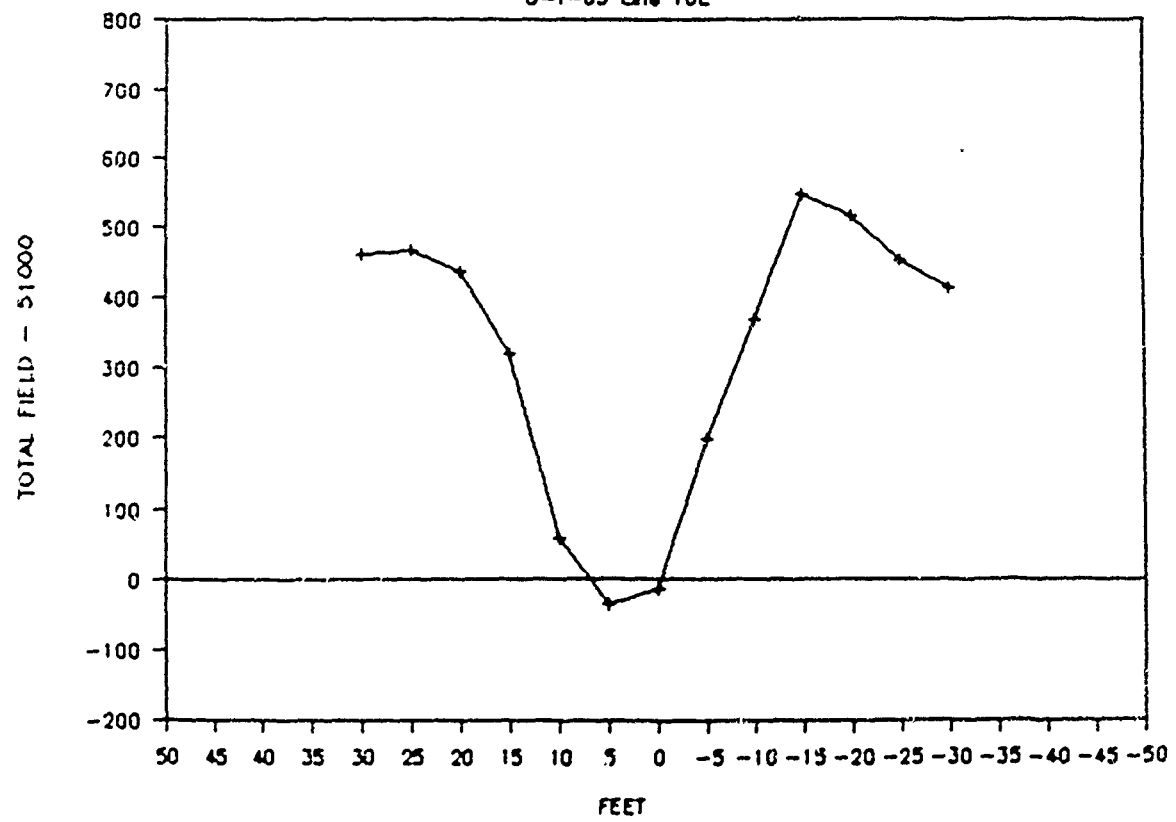
BEALE AFB

C-T-64 Line 0



BEALE AFB

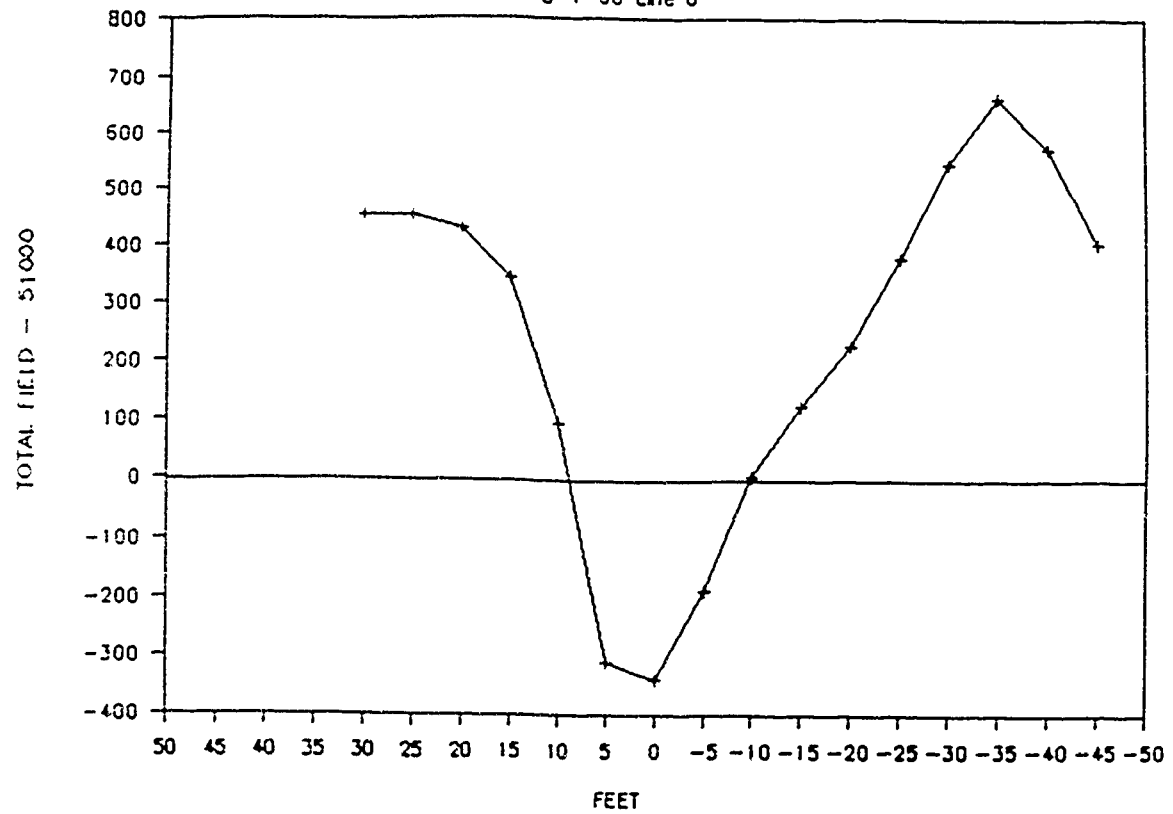
C-T-65 Line 10E



H-69

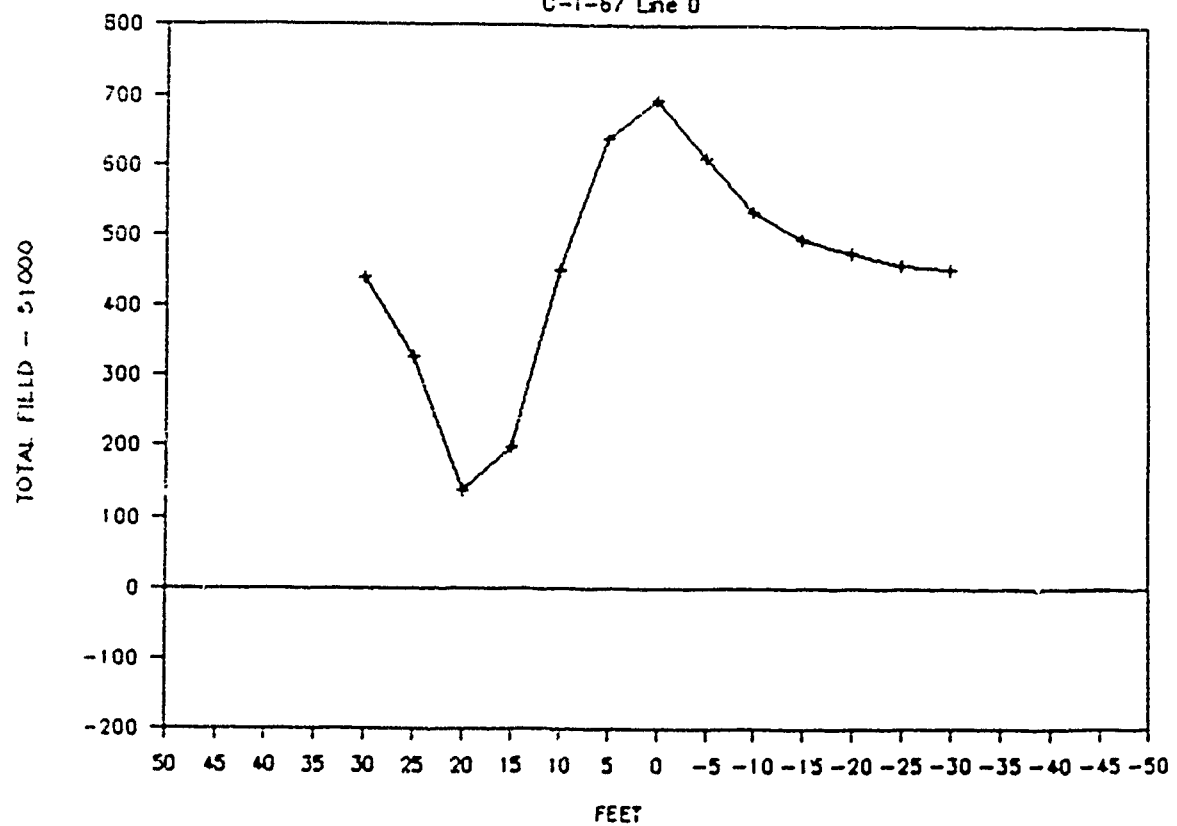
BEALE AFB

C-T-66 Line 0



BEALE AFB

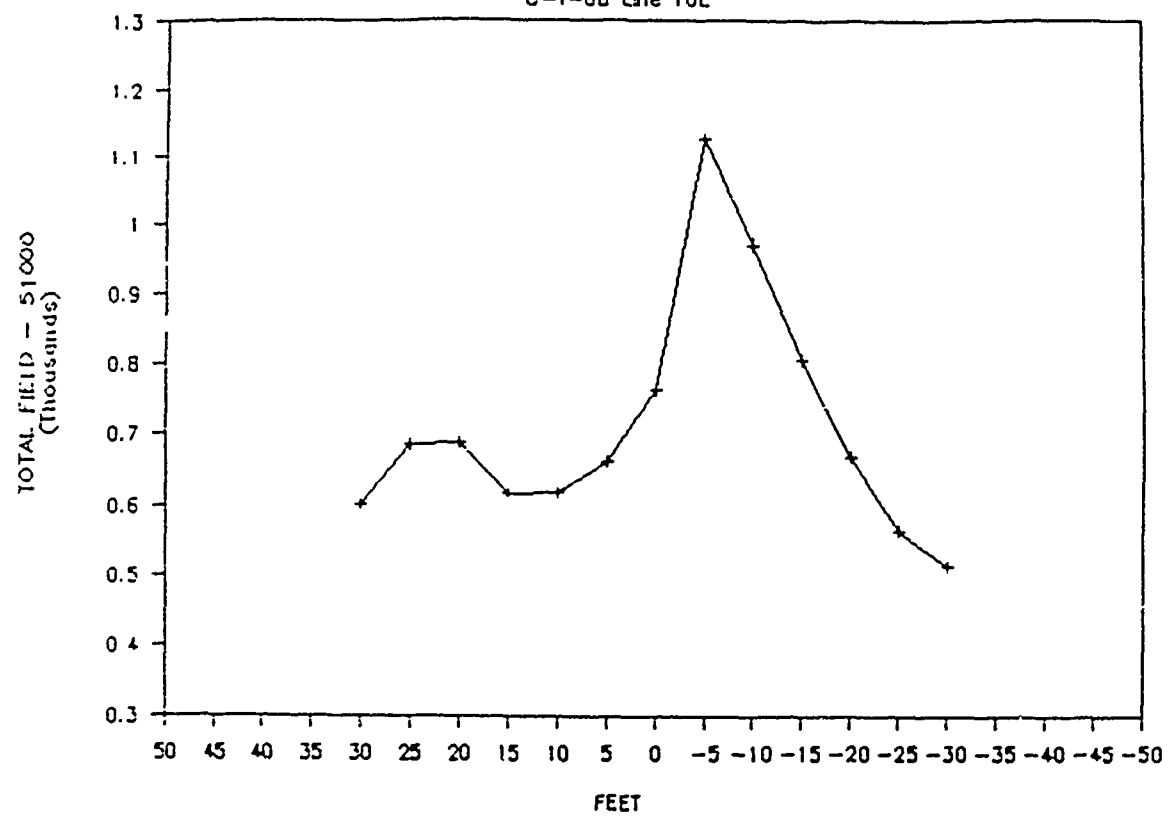
C-T-67 Line 0



H-70

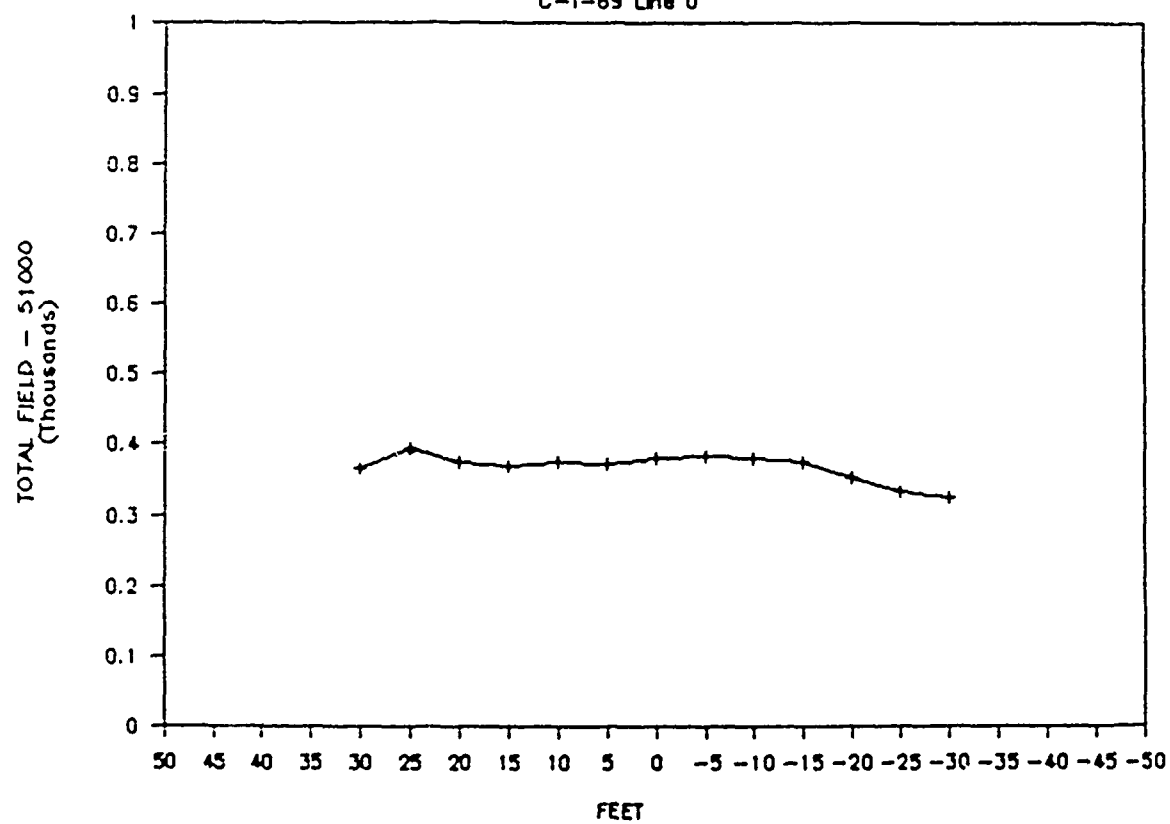
BEALE AFB

C-T-68 Line 10E



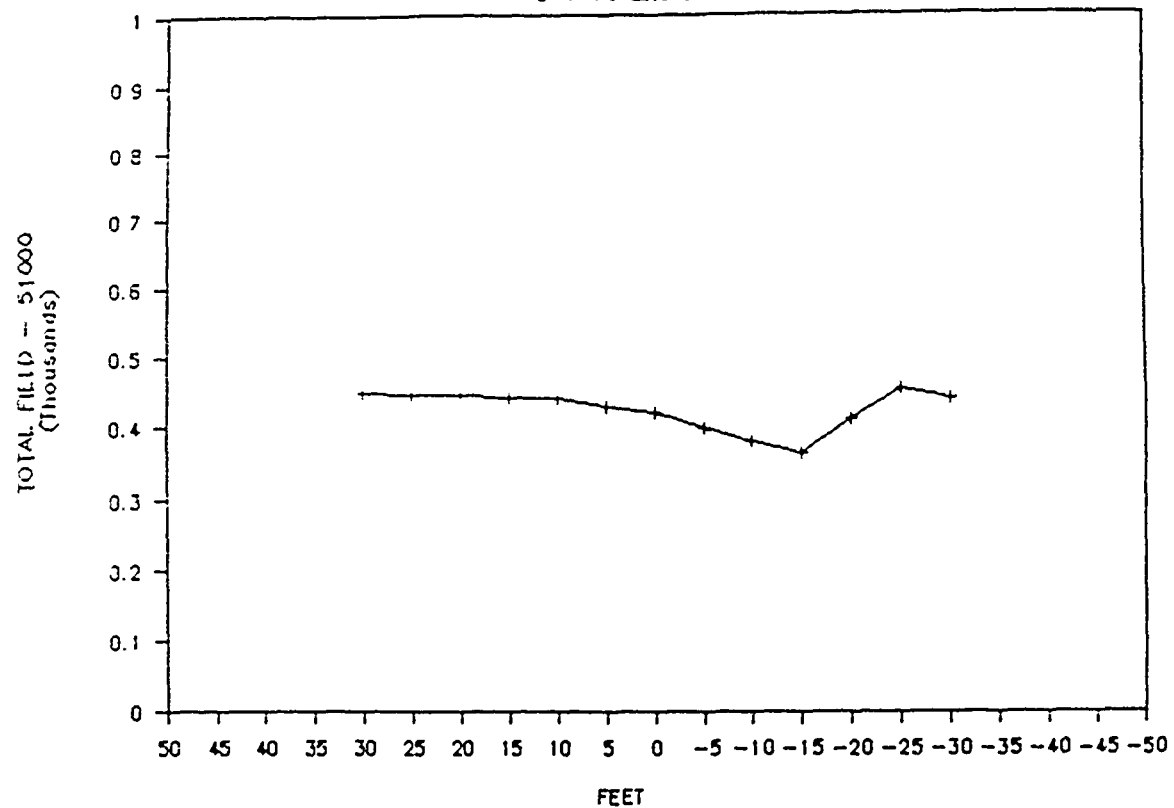
BEALE AFB

C-T-69 Line 0



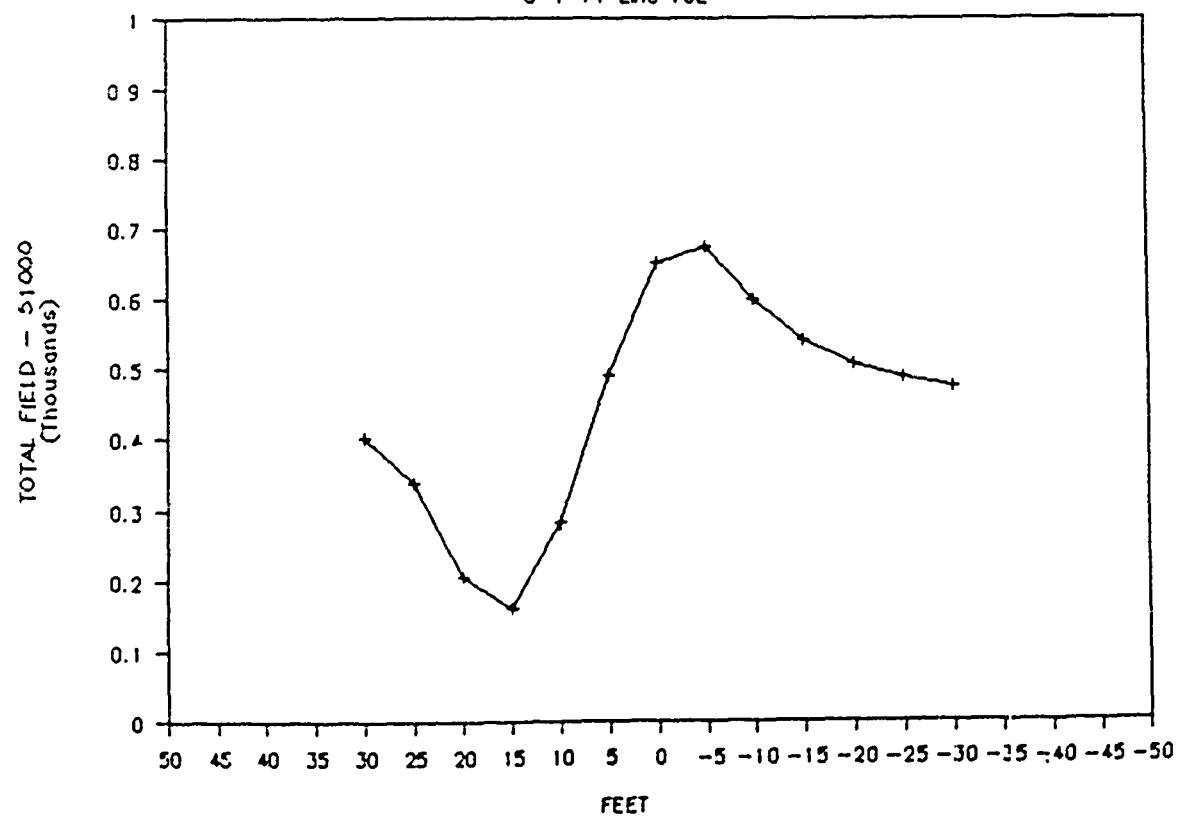
BEALE AFB

C-T-70 Line 0



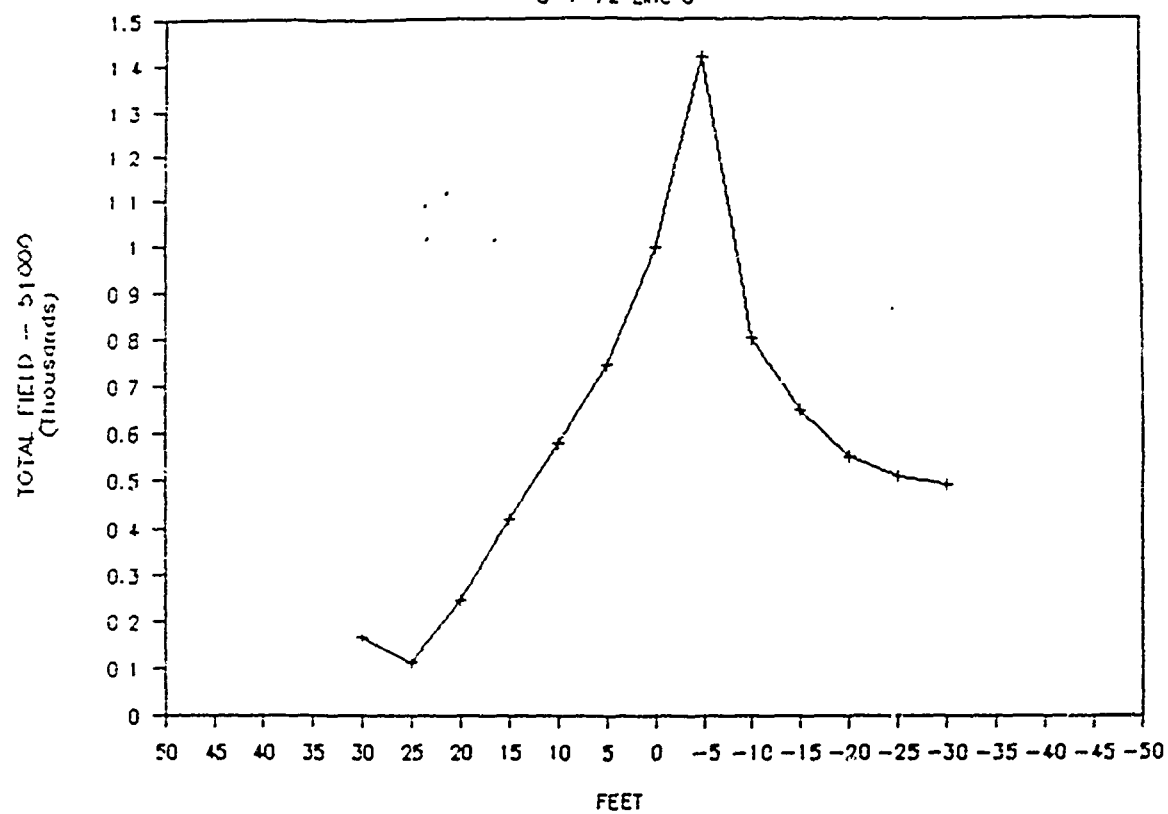
BEALE AFB

C-T-71 Line 10E



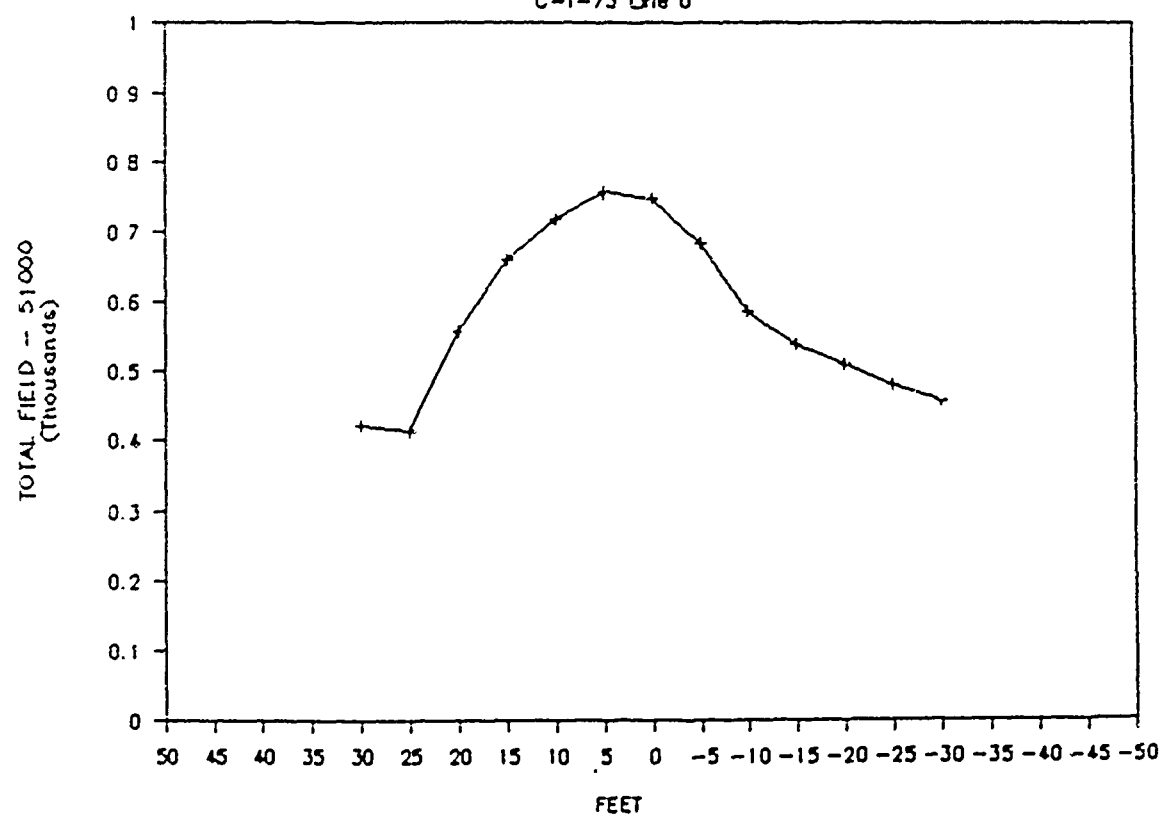
BEALE AFB

C-T-72 Line 0

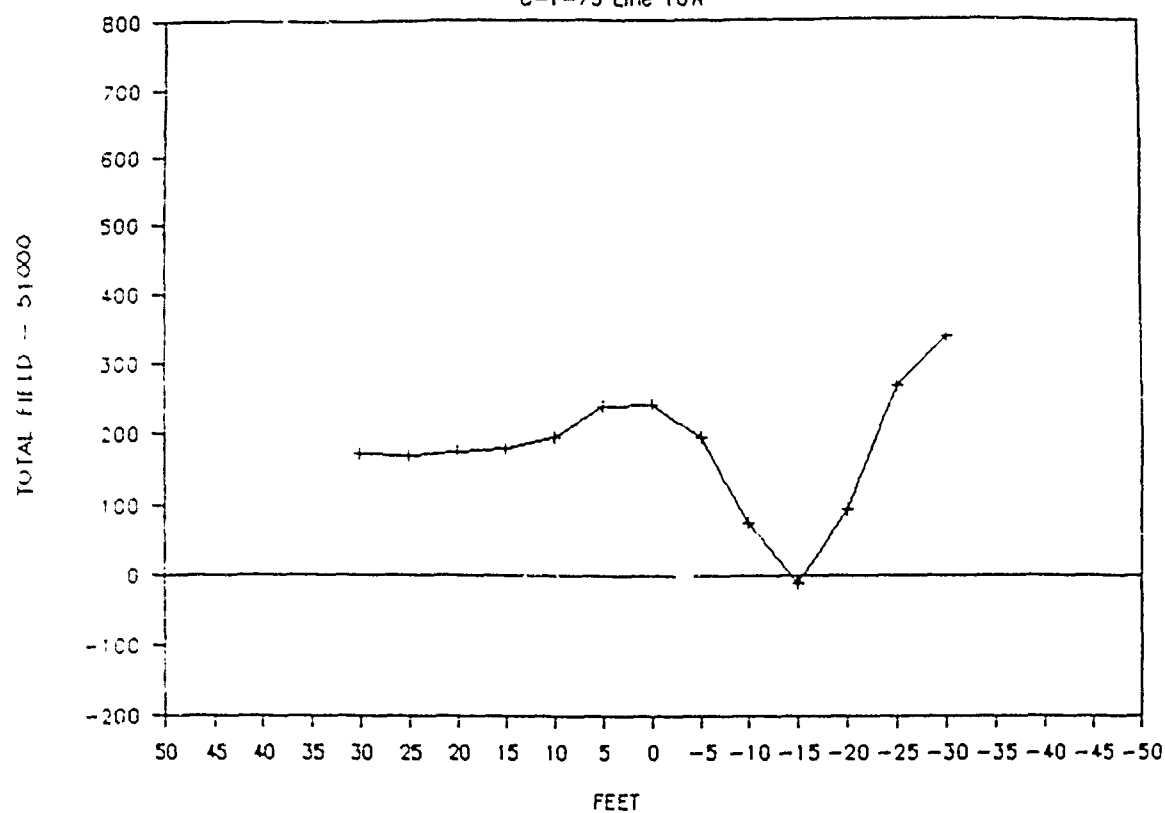


BEALE AFB

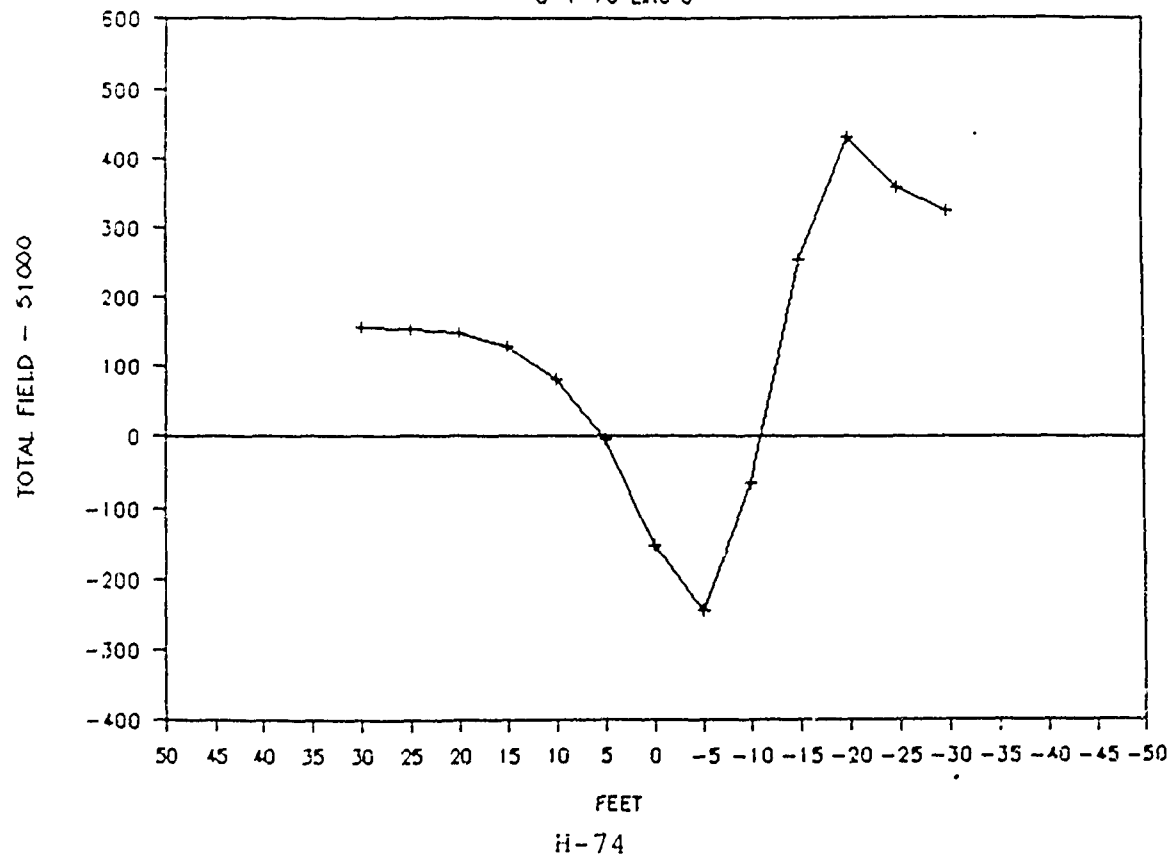
C-T-73 Line 0



C-T-75 Line 10W



C-T-76 Line 0



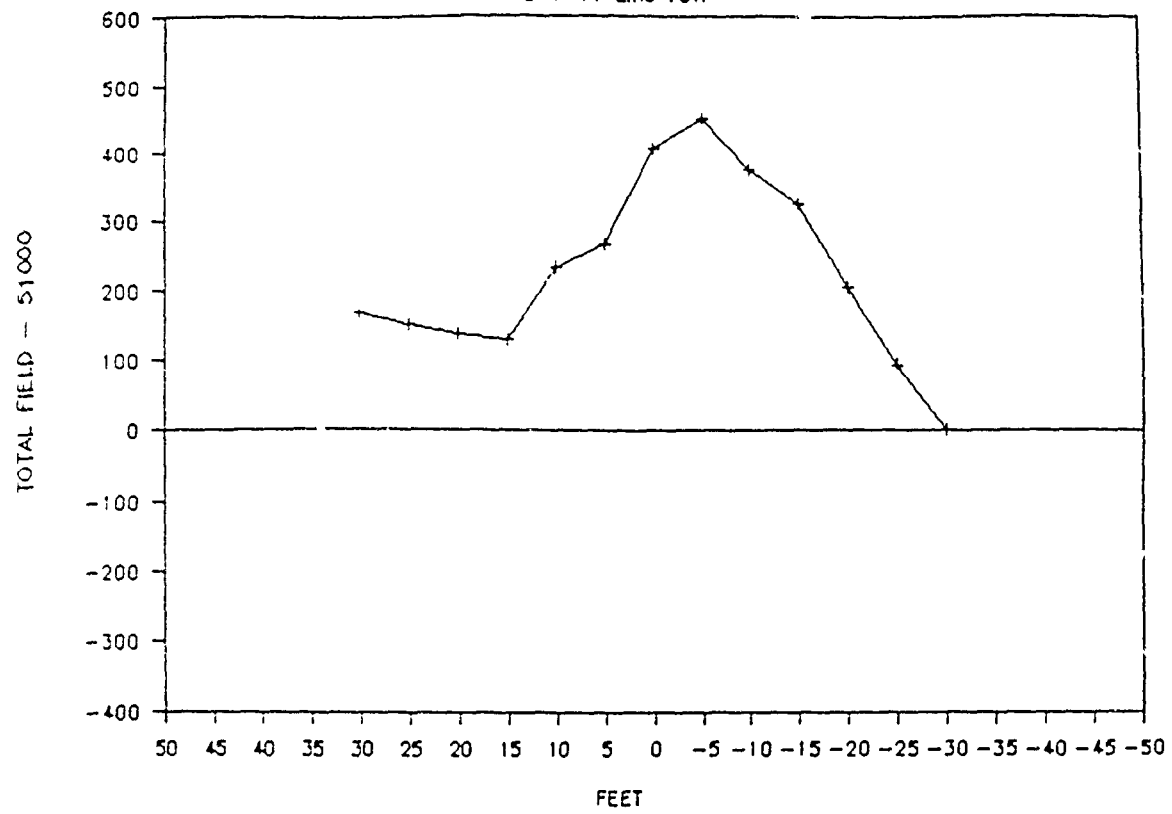
H-74

AC
eli
OR
S
nk
it

[illegible]

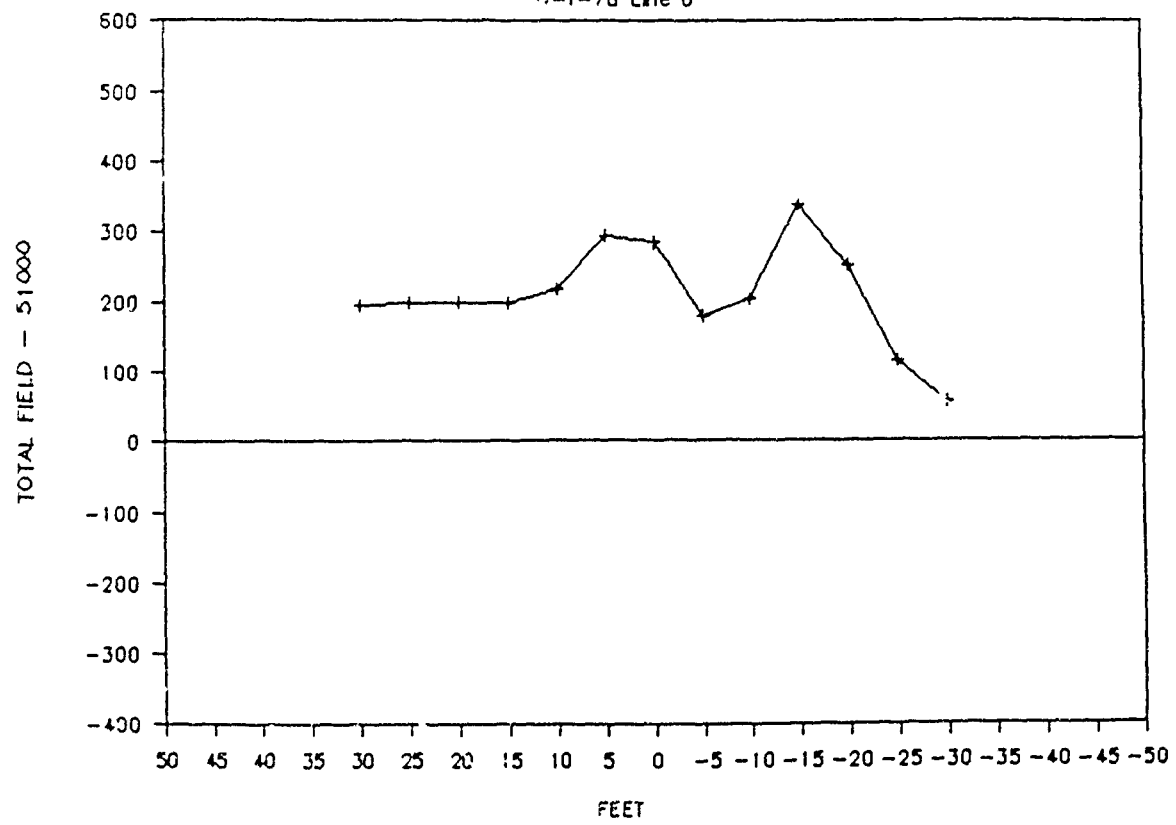
BEALE AFB

C-T-77 Line 10W



BEALE AFB

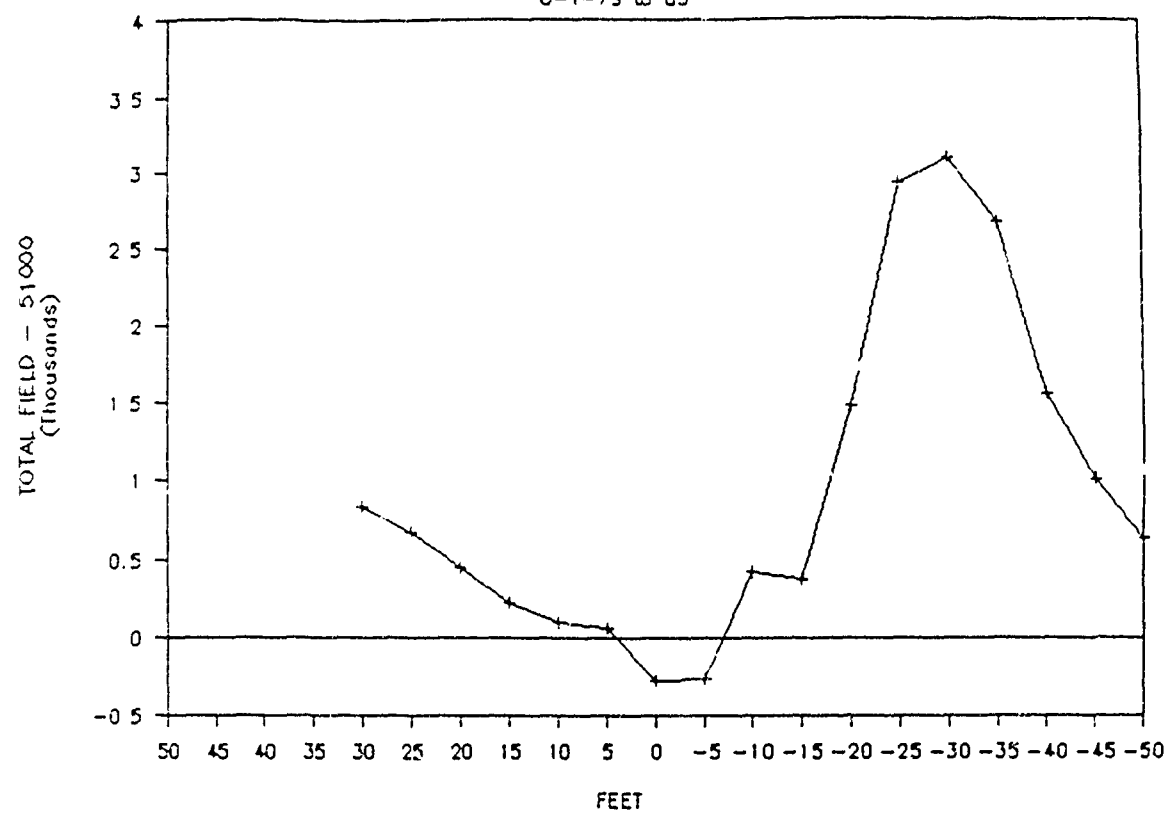
C-T-78 Line 0



M-75

BEALE AFB

C-T-79 to 83



APPENDIX I

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
(ARARS)

Appendix I ARARs DEVELOPMENT

INTRODUCTION TO APPENDIX

This Appendix presents the development of Applicable or Relevant and Appropriate Requirements (ARARs) for the Beale site. An introduction to ARARs is followed by the identification of ARARs for constituents currently detected (August 1989) at Beale sites.

There are three types of ARARs: chemical-, location-, and action-specific. Action-specific ARARs are typically identified during the development of remedial alternatives. Therefore, we have limited our analysis to chemical- and location-specific ARARs, which are normally identified during the remedial investigation.

An ARARs evaluation provides the information necessary to attain a degree of cleanup consistent with federal and state laws and regulations. However, ARARs may not address all contaminants and therefore may not adequately mitigate the threat of contaminants to public health and welfare. Evaluation and quantification of the threat to human health or the environment is the objective of a risk assessment. It is imperative that such an assessment be conducted for the Beale sites prior to the evaluation of remedial alternatives.

The references used to develop ARARs are represented in Table I-1. This table includes the references listed in Section 2 of the Handbook to Support the IRP Statements of Work for Remedial Investigation/Feasibility Studies (the "handbook") as well as additional ARARs references. Rationale is given for those omissions of sources listed in Section 2 of the handbook but not included in the ARARs analysis. While this document presents the development of ARARs, the ultimate determination of ARARs must be done by appropriate agencies.

INTRODUCTION TO ARARs

Congress specified, in Section 121(d) of the Superfund Amendments and Reauthorization Act (SARA), that site cleanups conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), comply with requirements of all applicable or relevant and appropriate federal and duly promulgated state

Table I-1
REVIEW OF SOURCES OF POTENTIAL ARARs

| Potential ARARs Source | Chemical | Location | Action | Comments |
|-----------------------------------------------------------------|----------|----------|--------|----------------------------------------------------------------------------------------|
| Resource Conservation and Recovery Act (RCRA) | X | X | * | |
| Solid Waste Disposal Act (SDWA) | | X | * | The Solid Waste Disposal Act is now RCRA. |
| Safe Drinking Water Act (SDWA) | X | | | Proposed revisions were also evaluated. |
| Clean Water Act (CWA) | X | X | | |
| Marine Protection, Research, and Sanctuaries Act (MPRSA) | | X | * | |
| Toxic Substances Control Act (TSCA) | X | | * | |
| Clean Air Act (CAA)
Ambient Air Quality Standards (AAQS) | X | X | * | |
| Occupational Safety and Health Administration (OSHA) | | | * | Does not have provisions that could be potential chemical- or location-specific ARARs. |
| National Pollutant Discharge Elimination System (NPDES) | | | * | Does not have provisions that could be potential chemical- or location-specific ARARs. |
| Health Effects Assessment and Maximum Contaminant Levels (MCLs) | X | | * | Evaluation included as part of SDWA evaluation. |
| Federal Water Quality Criteria | X | | * | Evaluation included as part of CWA evaluation. |
| Department of Transportation Regulations (DOT) | | | * | Does not have provisions that could be potential chemical- or location-specific ARARs. |

X - Evaluated as potential ARARs source.
* - Potential action-specific ARARs source.

Table I-1
(Continued)

| Potential ARARs Source | Chemical | Location | Action | Comments |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Laws and regulations pertaining to historic sites, fish and wildlife, archaeological resources, endangered species, "sole-source" aquifers, groundwater protection, flood plains, wetlands, etc. | | X | *
(some) | |
| CERCLA compliance with other laws (ARARs) Manual (OSWER Directive 9234.1-01 Interim Final) | | | | This document is not considered an ARAR; however, it was used extensively during the development of the Beale sites location- and chemical-specific ARARs. |
| Nuclear Waste Policy Act (NWPA) at any of the Beale | | | | Nuclear contaminants have not been detected sites as of August 1989. |
| California Hazardous Waste Management Regulations | X | X | * | |
| California Safe Drinking Water Act | X | | | |
| Mulford-Carrell Air Resources Act (California) | X | | * | This Act adopts the federal air standards as a minimum. Additional standards are added through counties that implement this Act. |
| California Porter-Cologne Water Quality Act | | X | * | |

X = Evaluated as potential ARARs source.
* = Potential action-specific ARARs source.

environmental and public health laws. These laws are known in the Superfund program as ARARs. The objective of the current Air Force Installation Restoration Program (AFIRP) is to develop and select solutions to remediate contamination through an approach that is in accordance with CERCLA, the National Contingency Plan (NCP), and SARA.

The goal of the development of ARARs is to identify a degree of cleanup at a site that is consistent with federal and state laws. ARARs must be attained for hazardous constituents remaining onsite at the completion of the remedial action. Remedial actions must also comply with ARARs with the purpose of protecting public health and the environment. ARARs should generally be attained at all points of potential exposure or at the point specified by the ARAR itself.

ARARs, as defined by the U.S. Environmental Protection Agency (EPA), are divided into three categories:

- o Chemical-specific
- o Location-specific
- o Action-specific

Chemical-specific ARARs impose quantitative restrictions on chemical contamination in the environment. Location-specific ARARs restrict activities in sensitive locations. Action-specific ARARs require remedial actions to meet predetermined design or performance standards.

As stated earlier, ARARs provide the basis for determining acceptable levels of environmental control as specifically required by other environmental laws. Actions taken at AFIRP sites must, like Superfund sites, at the least, meet these levels of control.

In addition to the requirements of federal and state environmental laws and regulations, this document identifies environmental criteria, advisories, and guidance documents that do not impose mandatory levels of environmental control but do provide a reasonable basis for evaluating conditions and actions. These criteria and guidance documents are "to be considered" (TBC) in determining appropriate actions. If ARARs are judged to be insufficiently protective of human health or the environment, or if there is no ARAR for a constituent, TBCs will be considered for inclusion in the site remedy.

Remedial actions conducted under CERCLA on National Priorities List (NPL) sites are exempt from permitting requirements, administrative requirements, and compliance with local laws and regulations. Since none of the Beale sites have been included on the NPL, these exemptions do not apply.

The standards, criteria, and action levels listed in the Analyte tables within Section 4 of the main body of the text represent the most stringent ARAR or TBC for a constituent. The values in these tables should only be considered in conjunction with this Appendix.

DEFINITIONS

The definitions associated with ARARs must be clearly understood to appreciate the outcome of any ARARs evaluation. The definitions, as used in this document and presented below, have been developed from OSWER Directive No. 9234.1-01.

Applicable Requirements

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA (AFIRP) site.

For a requirement to be applicable, the remedial action or the circumstances at the site must satisfy all of the jurisdictional prerequisites of that requirement. For example, the minimum technology requirement for landfills under RCRA applies only if a new hazardous waste landfill (or an expansion of an existing landfill) is to be built on a CERCLA (AFIRP) site.

Relevant and Appropriate Requirements

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, although not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA

(AFIRP) site so their use is well suited to the particular site. However, in some circumstances, a requirement may be relevant but not appropriate for the site-specific situation.

The relevance and appropriateness of a requirement can be judged by comparing certain factors with the factors addressed in the requirement. These factors include the characteristics of the remedial action, the hazardous substances in question, and the physical circumstances of the site. For example, although RCRA capping regulations are not applicable to capping in-place hazardous waste that was disposed prior to November 19, 1980, and left undisturbed by remedial action, the RCRA regulation for closure by capping may be deemed relevant and appropriate. It is also possible for portions of a requirement to be considered relevant and appropriate while other portions of the same requirement may be dismissed as irrelevant or inappropriate.

A requirement that is judged to be relevant and appropriate must be complied with to the same degree as if it were applicable. Moreover, under CERCLA, remedial actions must comply with a relevant and appropriate requirement that is more stringent than an applicable requirement.

Chemical-Specific ARARs

Chemical-specific ARARs include those laws and requirements that regulate materials containing specified chemical constituents or the release to the environment of materials possessing certain chemical or physical characteristics. These requirements generally set health or risk-based concentration limits or discharge limitations in various environmental media for specific hazardous substances. If, in a specific situation, a chemical is subject to more than one discharge or exposure limit, the more stringent of the requirements should generally be applied. The assessment of exposure limits should be completed as part of a risk assessment and therefore was not completed for Beale sites at this time.

Location-Specific ARARs

Location-specific ARARs are those requirements that relate to the geographic or physical position of the site, rather than the nature of the contaminants or the proposed site remedial actions. These requirements may limit the type of

remedial actions that can be implemented or may impose additional constraints on the cleanup action. Flood plain restrictions and the protection of endangered species are among the potential location-specific ARARs.

To Be Considered Requirements

In addition to legally binding laws and regulations, many federal and state environmental and public health programs also develop criteria, advisories, guidance, and proposed standards that are not legally binding but that may provide useful information or recommended procedures. These criteria are "to be considered" (TBC) and are usually evaluated, along with ARARs, to establish protective cleanup level targets and to help identify preferred remedial action alternatives. If no ARARs address a particular situation or if existing ARARs do not ensure protectiveness, TBC advisories, criteria, or guidelines should be used to set cleanup targets. Note that it may be necessary to adjust the TBC values in order to apply them. For instance, TBC values expressed as dosages may have to be converted to ambient concentration levels before they can be applied to a site. This conversion will be conducted as part of risk assessments to be performed in future IRP stages.

The location- and chemical-specific ARARs evaluation for the Beale sites was not done on a site-by-site basis. Rather, ARARs were identified as potential ARARs for all Beale sites. In addition to conducting a risk assessment, it will be necessary to develop site-specific ARARs for each of the Beale sites prior to the evaluation of remedial alternatives for these sites.

IDENTIFICATION OF ARARs AND TBCs

CHEMICAL-SPECIFIC

Tables I-2 and I-3 identify potential state and federal chemical-specific ARARs. Tables I-4, I-5, and I-6 present the standards for these potential chemical-specific ARARs for groundwater and surface water, air, and soil for constituents currently detected at Beale sites. The major laws that impose limits on the constituents in the tables are RCRA, the California SDWA, the federal SDWA, the Porter Cologne Water Quality Act, the Federal Clean Water Act, and the California Hazardous Waste Management regulations.

Table 1-2
INITIAL IDENTIFICATION OF POTENTIAL STATE CHEMICAL-SPECIFIC ARARS

| Requirement | Prerequisites | Citation | Description | Applicable/Relevant and Appropriate | Comments |
|-------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mulford-Carrell Air Resources Act (CARA) | Impacts on air quality | California Health and Safety Code, Division 26, Section 39000 et seq.

CAC Title 17, Part III, Chapter 1, Section 6000 et seq. | Establishes concentrations and durations of air pollutants that reflect the relationship between the intensity and composition of pollution to undesirable effects. | Yes/-- | Air sampling has not been conducted; potential for these pollutants exists. The federal Clean Air Act is implemented through CARA in California. CARA is implemented at the county level through local Air Quality Management Districts. |
| California Safe Drinking Water Act (SDWA) | Public water system | California Water Code Division 7, Part 1, Chapter 7, Section 4010 et seq.

CAC Title 22, Division 4, Chapter 15 | Establishes health-based standards for public water systems [maximum contaminant levels (MCLs) and secondary MCLs (SMCLs)] | Yes/-- | Organic and inorganic contaminants have been detected in ground-water and surface water at Beale AFB. California SMCLs are enforceable standards in California. |
| Porter-Cologne Water Quality Act | Waters of the United States | California Water Code, Division 7, Chapter 482

CAC Title 23, Chapter 3, Section 2050 et seq. | Objectives are to restore and maintain the chemical, physical, and biological integrity of California's waters. | Yes/-- | Hutchinson Creek, Reeds Creek, and Dry Creek all traverse Beale as they flow southwesterly from the foothills. The federal Clean Water Act is implemented under the Porter-Cologne Water Quality Act in California. |

NOTE: -- = If a requirement is applicable, it cannot also be relevant and appropriate.

Table I-3
INITIAL IDENTIFICATION OF POTENTIAL FEDERAL CHEMICAL-SPECIFIC ARARs

| Requirement | Prerequisites | Citation | Description | Applicable/
Relevant and
Appropriate | Comments |
|----------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safe Drinking Water Act (SDWA) | | | | | |
| National Primary Drinking Water Standards | Public water system | (42 USC 300)
40 CFR 141 | Establishes health-based standards for public water systems (maximum contaminant levels (MCLs)). | Yes/-- | Organic and inorganic contaminants have been detected in groundwater and surface water at Beale AFB. |
| National Secondary Drinking Water Standards | Public water system | 40 CFR 143 | Establishes standards for the aesthetic qualities of public water systems (secondary MCLs (SMCLs)). | No/Yes | SMCLs are not federally enforceable but are intended as guidelines for the states. |
| Maximum Contaminant Level Goals (also known as Recommended Maximum Contaminant Levels) | Public water system | Public Law No. 99-339
100 Stat. 642 (1986) | Establishes maximum contaminant level goals (MCLGs) of no known or anticipated adverse health effects. | No/No | MCLGs are nonenforceable requirements; however these are "to be considered." |
| Clean Water Act (CWA) ^a | Waters of the United States | 33 USC 1251 et seq. | Objectives are to restore and maintain the chemical, physical, and biological integrity of the nation's waters. | Yes/-- | Hutchinson Creek, Reeds Creek, and Dry Creek all traverse Beale as they flow southwesterly from the foothills. |
| Clean Air Act (CAA) ^b | | | | | |
| National Primary and Secondary Ambient Air Quality Standards (NAAQS) | Contamination of air affecting public health and welfare | 40 CFR 50
(42 USC 7401 et seq.) | Establishes standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead). | Yes/-- | While the type and extent of air pollutants, if any, that may be of concern at Beale are unknown at this time, the assumption that air pollutants are present at some of the Beale sites is a conservative estimate. |

Table 1-3 (Continued)

| Requirement | Prerequisite | Citation | Description | Applicable/
Relevant and
Appropriate | Comments |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Resource Conservation and Recovery Act (RCRA) HCLS | Uppermost aquifer underlying a waste management unit beyond the point of compliance; RCRA hazardous waste, storage or disposal. | 40 CFR 264.94 (42 USC 6901 et seq.) | Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits under 264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance. | No/Yes | The specific properties at many of the Beale APB sites are sufficiently similar to these requirements to render them relevant and appropriate. |
| Toxic Substance Control Act (TSCA) | PCB contaminated soils | 40 CFR 761 (15 USC 2601, et seq.) | | No/No | PCBs were not currently detected in Beale site soils. |

a The federal Clean Water Act is implemented in California by the State Water Resources Control Board (Porter-Cologne Water Quality Act).
b The federal Clean Air Act is implemented in California by the State Air Resources Board (Hulford-Carrell Air Resources Board).

NOTE: -- If a requirement is applicable, it cannot also be relevant and appropriate.

Table I-4
FEDERAL AND STATE POTENTIAL CHEMICAL-SPECIFIC ARARs AND TBCs: GROUNDWATER AND SURFACE WATER

| ARARs | | | | | | | | | | TBCs | | | |
|------------------------------|----------|------------------|------------------|-------------------|------------------|------------------------|-----------------------|---------|-------|---------------------|-----|-------------------|------------------|
| Constituent Detected | Units | RCRA | CaSDWA | CaSDWA | SDWA | CWA | | SDWA | SDWA | DHS | DHS | FAO | FAO |
| | | MCL ^a | MCL ^b | SMCL ^c | MCL ^d | Acute | AWQC ^e | | | | | | |
| | | | | | | | | | | | | | |
| Specific Conductivity | umhos/cm | NS | NS | 900 | NS | NS | NS ¹ | NS | NS | NS | NS | NS | NS |
| Temperature | deg C | NS | NS | NS | NS | 5-9 ¹ | NS | 6.5-8.5 | NS | NS | NS | NS | NS |
| pH | | NS | NS | NS | NS | 20 ⁰ | NS | NS | NS | NS | NS | NS | NS |
| Alkalinity | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Alkalinity-Phenolphthalein | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Bicarbonate | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Carbonate | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Total Dissolved Solids | mg/l | NS | NS | 500 | NS | NS | NS | 500 | NS | NS | NS | NS | NS |
| Chloride | mg/l | NS | 250 | 250 | NS | NS | NS | 250 | NS | NS | NS | NS | NS |
| Fluoride | mg/l | NS | 1.4 ^m | NS | 4.0 | NS | NS | 2.0 | 4 | NS | NS | NS | NS |
| Nitrate and Nitrite | mg/l | NS | 10 ⁿ | NS | 10 ^p | NS | NS | 10 | NS | NS | NS | NS | NS |
| Sulfate | mg/l | NS | NS | 250 | NS | NS | NS | 250 | NS | NS | NS | NS | NS |
| Chemical Oxygen Demand (COD) | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Arsenic | mg/l | 0.05 | 0.05 | NS | 0.05 | 0.0000022 ^q | NS | NS | NS | 0.022 ^r | NS | 0.10 ^s | 0.2 |
| Lead | mg/l | 0.05 | 0.05 | NS | 0.05 | 0.082 ^t | 0.0032 ^t | NS | NS | 0.0044 ^r | NS | 5.0 ^u | 0.1 ^v |
| Mercury | mg/l | 0.002 | 0.002 | NS | 0.002 | 0.0024 ^w | 0.000012 ^w | NS | 0.012 | 0.002 ^x | NS | NS | NS |
| TFH-Diesel | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| TFH-Gas | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Cyanide | mg/l | NS | NS | NS | NS | 0.022 ^w | 0.0052 ^w | NS | NS | NS | NS | NS | NS |
| Calcium | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Iron | mg/l | NS | NS | 0.3 | NS | 0.3 ¹ | NS | 0.3 | NS | NS | NS | NS | NS |
| Magnesium | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Manganese | mg/l | NS | NS | 0.05 | NS | 0.05 ¹ | NS | 0.05 | NS | NS | NS | NS | NS |
| Nickel | mg/l | NS | NS | NS | NS | 1.4 ^x | 0.16 ^t | NS | NS | 0.4 ^x | NS | NS | NS |
| Potassium | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Sodium | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Vanadium | mg/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Zinc | mg/l | NS | NS | 5.0 ¹ | NS | 0.120 ^t | 0.110 ^t | 5 | NS | 0.012 ^r | NS | NS | NS |
| Carbon tetrachloride | mg/l | NS | NS | NS | .005 | 35.2 | NS | NS | NS | NS | NS | NS | NS |
| Trans-1,2-Dichloroethene | ug/l | NS | NS | NS | NS | NS | NS | NS | 100 | NS | NS | NS | NS |
| Chloroform | ug/l | NS | NS | NS | NS | 0.19 ^q | NS | NS | NS | 6 ^x | NS | NS | NS |
| Methylene Chloride | ug/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | 40 | NS | NS |
| Trichloroethene | ug/l | NS | 5.0 | NS | 5.0 | 2.7 ^q | NS | NS | NS | NS | NS | NS | NS |
| 1,1,2-Trichloroethane | ug/l | NS | 32 | NS | NS | 0.6 ^q | NS | NS | NS | NS | 100 | NS | NS |
| Tetrachloroethene | ug/l | NS | 5.0 | NS | NS | 0.8 ^q | NS | NS | NS | NS | 4.0 | NS | NS |
| Toluene | ug/l | NS | NS | NS | 2000 | 14,300 ^y | NS | 40 | 2000 | 100 ^x | 100 | NS | NS |
| N-Nitrosodiphenylamine(l) | ug/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| Di-n-Butylphthalate | ug/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |
| bis (2-Ethylhexyl) Phthalate | ug/l | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS |

Table I-4
(Continued)

NS = No Standard, criteria, or action level exists for constituent.

*Resource Conservation and Recovery Act (RCRA) Maximum Contaminant Level (MCL)

*California Safe Drinking Water Act (CaSDWA) MCL

*CaSDWA Secondary MCL (SMCL)

*Federal SDWA MCL

*Federal Clean Water Act (CWA) Ambient Water Quality Criteria (AWQC)

*Federal SDWA SMCLs

*Federal SDWA MCL goals

*Drinking Water Applied Action Levels recommended by the California Department of Health Services; Technical Services Branch to be used in conjunction with the California Site Mitigation Decision Tree.

*Drinking Water Action Levels recommended by the California Department of Health Services, Public Water Supply Branch

*Food and Agriculture Organization of the United Nations (FAO) Recommended Maximum Concentration. The maximum concentration is based on a water application rate consistent with good irrigation practices (10,000 m³ per hectare per year)

*Standard varies with location and freshwater species

*For domestic water supply (welfare)

*Value of 1.4 mg/l is for air temperature of 26.3° to 32.5° C; MCL changes with air temperature to a maximum of 2.4 mg/l at 12.0° C and below

*Standard is for Nitrate (as NO₃)

*Standard is for Nitrate as N

*Nitrate Nitrogen for domestic water supply

*Level which may result in excess cancer risk of 10⁻⁶. Ingestion of contaminated water and aquatic organisms.

*For freshwater aquatic species biological receptor

*Toxicity to plants varies widely ranging from 12 mg/l for sudan grass to less than 0.05 mg/l for rice

*Hardness dependent criteria (100 mg/l used); for protection of freshwater aquatic species

*Can inhibit plant cell growth at very high concentrations

*Lead is accumulative and problems may begin at a threshold value of 0.05 mg/l

*Standard is for protection of freshwater aquatic species

*For human biological receptor

*For protection of human health from the toxic properties of toluene ingested through water and contaminated aquatic organisms

Table I-5
FEDERAL AND STATE POTENTIAL CHEMICAL-SPECIFIC
ARARs AND TBCs: AIR

| <u>Constituent Detected^a</u> | <u>Units</u> | <u>TBC</u> |
|-----------------------------------------|-------------------|--------------------------------------------------|
| | | <u>DHS Applied
Action Levels^b</u> |
| Dichloromethane | mg/m ³ | NS |
| 1,2-Dichloroethane | mg/m ³ | NS |
| Benzene | mg/m ³ | 0.0032 |
| Carbon Tetrachloride | mg/m ³ | NS |
| Trichloroethene | mg/m ³ | 0.007 |
| Tetrachloroethene | mg/m ³ | NS |

NS = No standard, criteria, or action level exists
for constituent.

^aConstituents detected in ambient air downwind of Landfill
Number 3.

^bApplied Action Levels recommended by California Department
of Health Services (6/30/89) for use with the California
Site Mitigation Decision Tree.

Table I-6
FEDERAL AND STATE POTENTIAL CHEMICAL-SPECIFIC
ARARs AND TBCs: SOIL

| Constituent | Units | TBCs | | | |
|---------------------------|-------|-----------------------------------------|----------------------------------------------|-----------------------------------------|-------------------|
| | | Title 22
TTLC
Values ^a | SWRCB LUFT
Cleanup
Levels ^b | Title 22
STLC
Values ^c | |
| Percent Moisture | mg/kg | NS | NS | mg/l | NS |
| Soil pH | mg/kg | NS | NS | mg/l | NS |
| Ignitability | mg/kg | NS | NS | mg/l | NS |
| Cyanide | mg/kg | NS | NS | mg/l | NS |
| Mercury | mg/kg | 20 | NS | mg/l | NS |
| Oils and Grease | mg/kg | NS | NS | mg/l | NS |
| TFH-Diesel | mg/kg | NS | NS | mg/l | NS |
| TFH-Gas | mg/kg | NS | NS | mg/l | NS |
| Aluminum | mg/kg | NS | NS | mg/l | NS |
| Antimony | mg/kg | 500 | NS | mg/l | 15 |
| Barium | mg/kg | 10,000 | NS | mg/l | 100 |
| Beryllium | mg/kg | 75 | NS | mg/l | 0.75 ^d |
| Cadmium | mg/kg | 100 | NS | mg/l | 1.0 |
| Calcium | mg/kg | NS | NS | mg/l | NS |
| Chromium | mg/kg | 500 ^d | NS | mg/l | 5 |
| Cobalt | mg/kg | 8,000 | NS | mg/l | 80 |
| Copper | mg/kg | 2,500 | NS | mg/l | 25 |
| Iron | mg/kg | NS | NS | mg/l | NS |
| Lead | mg/kg | 1,000 | NS | mg/l | 5 |
| Magnesium | mg/kg | NS | NS | mg/l | NS |
| Manganese | mg/kg | NS | NS | mg/l | NS |
| Nickel | mg/kg | 2,000 | NS | mg/l | 20 |
| Potassium | mg/kg | NS | NS | mg/l | NS |
| Silver | mg/kg | 500 | NS | mg/l | 5 |
| Sodium | mg/kg | NS | NS | mg/l | NS |
| Thallium | mg/kg | 700 | NS | mg/l | 7 |
| Vanadium | mg/kg | 2,400 | NS | mg/l | 24 |
| Zinc | mg/kg | 5,000 | NS | mg/l | 250 |
| Chloromethane | mg/kg | NS | NS | mg/l | NS |
| Methylene Chloride | mg/kg | NS | NS | mg/l | NS |
| Acetone | mg/kg | NS | NS | mg/l | NS |
| 2-Butanone | mg/kg | NS | NS | mg/l | NS |
| Vinyl Acetate | mg/kg | NS | NS | mg/l | NS |
| Carbon Disulfide | mg/kg | NS | NS | mg/l | NS |
| 1,1-Dichloroethane | mg/kg | NS | NS | mg/l | NS |
| Trans 1,2-Dichloroethane | mg/kg | NS | NS | mg/l | NS |
| Trichloroethene | mg/kg | 2,040 | NS | mg/l | 204 |
| Tetrachloroethene | mg/kg | NS | NS | mg/l | NS |
| 1,1,2,2-Tetrachloroethane | mg/kg | NS | NS | mg/l | NS |
| Benzene | mg/kg | NS | NS | mg/l | NS |

| Constituent | Units | TBCs | | | |
|----------------------------|-------|--------------------------------------------------------|------------|------------------------------------|-----|
| | | Title 22 | SWRCB LUFT | Title 22 | |
| | | TTLCCleanup
Values ^a Levels ^b | | STLCCleanup
Values ^c | |
| 4-Methyl-2-Pentanone | mg/kg | NS | NS | mg/l | NS |
| 2-Hexanone | mg/kg | NS | NS | mg/l | NS |
| Chloroform | mg/kg | NS | NS | mg/l | NS |
| Toluene | mg/kg | NS | NS | mg/l | NS |
| Chlorobenzene | mg/kg | NS | NS | mg/l | NS |
| Ethylbenzene | mg/kg | NS | NS | mg/l | NS |
| Styrene | mg/kg | NS | NS | mg/l | NS |
| Xylenes (Total) | mg/kg | NS | NS | mg/l | NS |
| Xylenes (O&M) | mg/kg | NS | NS | mg/l | NS |
| Xylenes (p) | mg/kg | NS | NS | mg/l | NS |
| Phenol | mg/kg | NS | NS | mg/l | NS |
| 4-Methylphenol | mg/kg | NS | NS | mg/l | NS |
| 2,4-Dimethylpheno | mg/kg | NS | NS | mg/l | NS |
| Pentachlorophenol | mg/kg | 17 | NS | mg/l | 1.7 |
| 2-Chlorophenol | mg/kg | NS | NS | mg/l | NS |
| 1,3-Dichlorobenzene | mg/kg | NS | NS | mg/l | NS |
| 1,4-Dichlorobenzene | mg/kg | NS | NS | mg/l | NS |
| 1,2-Dichlorobenzene | mg/kg | NS | NS | mg/l | NS |
| Benzoic Acid | mg/kg | NS | NS | mg/l | NS |
| Isophorone | mg/kg | NS | NS | mg/l | NS |
| 2,4-Dinitrotoluene | mg/kg | NS | NS | mg/l | NS |
| 2,6-Dinitrotoluene | mg/kg | NS | NS | mg/l | NS |
| Acenaphthene | mg/kg | NS | NS | mg/l | NS |
| Fluorene | mg/kg | NS | NS | mg/l | NS |
| Phenanthrene | mg/kg | NS | NS | mg/l | NS |
| Anthracene | mg/kg | NS | NS | mg/l | NS |
| Fluoranthene | mg/kg | NS | NS | mg/l | NS |
| Pyrene | mg/kg | NS | NS | mg/l | NS |
| Naphthalene | mg/kg | NS | NS | mg/l | NS |
| Methylnaphthalene | mg/kg | NS | NS | mg/l | NS |
| 2-Methylnaphthalene | mg/kg | NS | NS | mg/l | NS |
| N-Nitrosodiphenylamine | mg/kg | NS | NS | mg/l | NS |
| N-Nitrosodimethylamine | mg/kg | NS | NS | mg/l | NS |
| Butylbenzylphthalate | mg/kg | NS | NS | mg/l | NS |
| Di-n-octylphthalate | mg/kg | NS | NS | mg/l | NS |
| bis(2 ethylhexyl)phthalate | mg/kg | NS | NS | mg/l | NS |
| Chrysene | mg/kg | NS | NS | mg/l | NS |
| Benzo(b)fluoranthene | mg/kg | NS | NS | mg/l | NS |
| Benzo(k)fluoranthene | mg/kg | NS | NS | mg/l | NS |
| Indeno(a)pyrene | mg/kg | NS | NS | mg/l | NS |
| Benzo-a-pyrene | mg/kg | NS | NS | mg/l | NS |
| Indeno(1,2,3-cd)pyrene | mg/kg | NS | NS | mg/l | NS |
| Tetra Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Penta Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Hexa Furans (total) | mg/kg | NS | NS | mg/l | NS |

Table I-6
(Continued)

| Constituent | Units | TBCs | | | |
|------------------------|-------|-----------------------------------------|----------------------------------------------|-------|-----------------------------------------|
| | | Title 22
TTLC
Values ^a | SWRCB LUFT
Cleanup
Levels ^b | Units | Title 22
STLC
Values ^c |
| Indeno(1,2,3-cd)pyrene | mg/kg | NS | NS | mg/l | NS |
| Tetra Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Penta Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Hexa Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Hepta Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Octa Furans (total) | mg/kg | NS | NS | mg/l | NS |
| Tetra Dioxins (total) | mg/kg | 0.01 ^d | NS | mg/l | 0.001 ^e |
| Penta Dioxins (total) | mg/kg | NS | NS | mg/l | NS |
| Hexa Dioxins (total) | mg/kg | NS | NS | mg/l | NS |
| Hepta Dioxins (total) | mg/kg | NS | NS | mg/l | NS |
| Octa Dioxins (total) | mg/kg | NS | NS | mg/l | NS |

NS = No standard, criteria, or action level exists for constituent.

^aCalifornia Hazardous Waste Management Regulations, CAC Title 22, Division 4, Chapter 30, Total Threshold Limit Concentrations (TTLC) for hazardous waste determination. A waste is a hazardous waste if the concentration of a constituent in the waste exceeds the TTLC for that constituent.

^bState Water Resources Control Board (SWRCB) Leaking Underground Full Tank (LUFT) Cleanup Levels for contaminants in soil

^cCalifornia Hazardous Waste Management Regulations, CAC Title 22, Division 4, Chapter 30, Soluble Threshold Limit Concentrations (STLC) for hazardous waste determination. A waste is a hazardous waste if the concentration of a constituent in the waste exceeds its listed STLC for that constituent. The Waste Extraction Test (WET) is used for this determination.

^dChromium VI compounds. For chromium III compounds, value TTLC is 2,500 mg/kg.

^eCleanup standards vary, depending on site characteristics (depth of contamination, source, precipitation, etc.).

^fStandard is for 2,3,7,8-TCDD

Groundwater and Surface Water

The RCRA and state and federal SDWA Maximum Contaminant Level (MCL) standards are based on human consumption of water for drinking, cooking, and bathing. Economic considerations and technical feasibility of treatment processes are included in the justification for these levels. These are enforceable standards that are applicable to contaminants in any surface water body or aquifer that can be classified as a source or potential source of public drinking water. At some of the Beale sites, the SDWA and RCRA MCLs may be considered applicable or relevant and appropriate to surface water or groundwater, even though the water is not a current source of public drinking water at that site.

Also presented in Table I-4 are state and federal secondary MCL (SMCL) standards. SMCLs are intended to protect the public welfare, and to ensure a supply of pure, wholesome, and potable water. The California SMCLs are enforceable standards that are applicable to distribution system water. At some of the Beale sites, the California SMCLs may be considered applicable or relevant and appropriate to surface water or groundwater, even though the water is not distribution system water (e.g., if there are not other standards for a constituent, or if the SMCL is more stringent than an ARAR). Federal SMCLs are not enforceable but are intended as guidelines for the states. Federal SMCLs are therefore TBCs.

The point of compliance must be determined at each Beale site for MCLs and SMCLs. Where the contaminant has not actually entered a public drinking water supply (the actual service line into homes or businesses), but has entered an aquifer or surface water body that is or may be used for drinking water, the effects of dilution or biodegradation may be considered in determining the allowable concentration for the aquifer or surface water body. Therefore, the concentrations listed in Table I-4 represent ARARs for Superfund (AFIRP) actions, but do not dictate where those standards must be met. Determining allowable concentrations and determining where these standards should be met should be the goal of a risk assessment and the development of site-specific ARARs.

The federal CWA Ambient Water Quality Criteria (AWQC) are implemented in California under the Porter Cologne Water Quality Act. AWQC are designed to protect aquatic life (both marine and freshwater), and in some cases, human wel-

fare. The standards to protect aquatic life are expressed on the bases of acute and chronic toxicity levels. The standards to protect human health are not expressed on the bases of acute and chronic toxicity levels. However, these standards are listed in the acute column because they are maximum values. Where there are standards for protection of aquatic life and for human health, the more stringent of the two standards is presented in Table I-4.

As is true for the MCLs and SMCLs, the point of compliance with AWQC must be determined at each Beale site. It may be appropriate to consider the effects of dilution or biodegradation in determining the allowable concentration for an aquifer or surface water body.

MCL goals (MCLGs) were also reviewed as potential TBCs. MCLGs are health based standards that do not take into account the cost or implementability of treatment. They are goals for the nation's public water supply systems that represent the concentration at which there is no known risk to human health. EPA has determined that MCLs protect human health and the environment and, therefore, EPA classifies MCLs as ARARs. MCLGs are not promulgated, enforceable requirements and therefore are TBCs, not ARARs. MCLGs, along with other TBCs, may be used when multiple compounds or exposure pathways cause the MCLs and other ARARs to be less than fully protective.

The Technical Services Branch of the California Department of Health Services (DHS) Applied Action Levels for drinking water are also potential TBCs for the Beale sites. DHS Applied Action Levels are developed for and must be used in conjunction with the process outlined in the DHS document "California Site Mitigation Decision Tree," May 1985. Applied Action Levels and the Site Mitigation Decision Tree process should be used when the ARARs for a given constituent are insufficient to protect public health.

The DHS Action Levels for Public Water Supplies are potential TBCs for the Beale sites. DHS Action Levels are numeric guidelines for the protection of public drinking water supplies established by the Public Water Supply Branch of the DHS. Action Levels should be used in conjunction with Applied Action Levels to determine the levels at which water purveyors must take corrective action. Action Levels are TBCs and should be used when ARARs for a given constituent do not adequately protect public health.

Maximum Concentrations and Guidelines for Livestock Drinking Water recommended by the Food and Agriculture Organization of the United Nations (FAO) are potential TBCs. These limits are recommended levels for use in agricultural irrigation and livestock consumption. These limits could be TBCs at Beale sites where contaminated water could be potentially used for agricultural irrigation or livestock consumption if there are no ARARs for the constituent of interest.

Air

The federal Clean Air Act (CAA) is administered in California under the Mulford-Carrell Air Resources Act (CARA). The air standards under this act that are established by EPA are:

- o Criteria pollutants--National Ambient Air Quality Standards (NAAQS) Program
- o Hazardous air pollutants--New Source Emissions Standards for Hazardous Air Pollutants (NESHAP) Program
- o Designated Pollutants--New Source Performance Standards (NSPS)

The NAAQS are the only CAA standards that could be considered chemical-specific ARARs. NESHAPS and NSPS are potential action-specific ARARs. The NAAQS are not directly enforceable. However, the NAAQS are used to develop State Implementation Plans (SIPs), and SIPs and NAAQS are used to set emission limitations in permits. The emission limitations are enforceable standards. If the Beale sites are emitting air contaminants, these sites could be considered stationary sources and the NAAQS could be considered applicable or relevant and appropriate for the Beale sites. The NAAQS were reviewed for potential applicability or relevance and appropriateness to the constituents currently detected (August 1989) in air at the Beale sites. There are no NAAQS for these constituents. Likely potentially applicable or relevant and appropriate NAAQS for the Beale sites will include the standards for lead, particulate matter, and ozone. In addition to the provisions of the federal CAA, the CARA establishes specific requirements for certain pollutants. The Air Resources Board (ARB) has divided California into specific air basins and has set standards for these basins. Local Air Pollution Control Districts (APCDs) have been delegated primary responsibility for the

control of emissions from stationary sources in each basin. As with the NAAQS, the CARA air standards could be considered a potential ARAR for the Beale sites. The rules and regulations governing air pollution control in Yuba County were reviewed as potential TBCs for the Beale sites. No standards for any of the known Beale site contaminants were found in these rules and regulations. Likely potentially applicable or relevant and appropriate Yuba County standards for Beale will include the standards for visible emissions (Rule 3.0), particulate matter concentration (Rule 3.2), dust and fumes (Rule 3.3), and odors (Rule 2.13).

The California DHS Applied Action Levels for air are also potential TBCs for the Beale sites. DHS Applied Action Levels are developed for and must be used in conjunction with the process outlined in the DHS document "California Site Mitigation Decision Tree," May 1985. Applied Action Levels and the Site Mitigation Decision Tree process should be used when the ARARs for a given constituent are insufficient to protect public health. Applied Action Levels for constituents detected in ambient air downwind of Landfill Number 3 are listed in Table I-5.

Soil

The California Hazardous Waste Management regulations, CAC Title 22, Division 4, Chapter 30 Total Threshold Limit Concentrations (TTLC) and Soluble Threshold Limit Concentrations (STLC) for hazardous waste determination are potential TBCs. If the concentration of a constituent in the waste exceeds the TTLC or the STLC for that constituent, the waste is a hazardous waste. Although the TTLC and/or STLC values for determining whether or not a waste is hazardous would probably not be considered a cleanup level, TTLC and STLC values should be considered where an ARAR does not exist for a constituent or when an ARAR is not protective of human health.

The State Water Resources Control Board (SWRCB) Leaking Underground Fuel Tank (LUFT) Field Manual is another potential TBC. This manual sets cleanup levels for benzene, toluene, xylene, ethylbenzene, and total petroleum hydrocarbons (see Table I-6). These levels are determined from site characteristics. Computer modeling is used to determine these levels.

Location-Specific

Tables I-7 and I-8 provide the potential state and federal location-specific requirements currently identified as potential ARARs for CERCLA (AFIRP) remedial actions. Location-specific ARARs differ from chemical-specific or action-specific ARARs in that they are not closely related to the characteristics of the wastes at the site or to the specific remedial alternative under consideration. Location-specific ARARs are concerned with the characteristics of the area in which the site is located. Actions may be required to preserve or protect aspects of the environment or cultural resources of the area that may be threatened by the existence of the site or by remedial actions at the site.

The laws that form the list of potential location-specific ARARs include RCRA, the National Archaeological and Historic Preservation Act, the National Historic Preservation Act, the Historic Sites, Buildings, and Antiquities Act, the Endangered Species Act, the Clean Water Act, the Safe Drinking Water Act, the Wilderness Act, the Fish and Wildlife Coordination Act, the National Wildlife Refuge System Act, the Scenic Rivers Act, the Rivers and Waters Act, the Coastal Zone Management Act, the Marine Protection Resources and Sanctuary Act, the Executive Orders on the Protection of Wetlands and on the Protection of Flood Plains, the Porter-Cologne Water Quality Control Act, and CARA.

The potential location-specific ARARs for the Beale sites are RCRA, the Executive Order on Flood Plains, the Fish and Wildlife Coordination Act, the Endangered Species Act, the California Endangered Species Act, and the California Fish and Game Code.

Site 17, next to Best Slough, is located on the edge of the 100-year flood plain. The RCRA regulations [40 CFR 264.18(b)] require that hazardous waste treatment, storage, or disposal facilities within the 100-year flood plain be designed, constructed, operated, and maintained to prevent washout. If remedial actions require construction of such a facility in the flood plain, it would likely be necessary to meet this requirement.

Site 1 is also located in a lowland that could be susceptible to light flooding. The Executive Order on Flood Plains (Executive Order 11988) could be relevant and appropriate for this site. Executive Order 11988 requires that if actions are to occur in a flood plain, measures must be taken to avoid adverse effects, minimize potential harm,

Table 1.7
INITIAL IDENTIFICATION OF POTENTIAL STATE LOCATION SPECIFIC AREAS

| Requirement | Prerequisite | State | Description | Apply state/Permit
and/or Priority | Comments |
|------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| California Endangered Species Act | Critical habitat upon which endangered species or threatened species depend | Title 14, Division 670.5, Chapter 1.5 | Must take action to conserve endangered or threatened species. | Yes/ | With the exception of a Beale that lives in elderberry bushes (the only known endangered species at any of the Beale sites are migrant). The California Endangered Species Act will be ABAR if elderberry bushes are disturbed. |
| Porter-Cologne Water Quality Control Act | Wetland | California Water Code, Division 7, Chapter 482 | Must take action to minimize destruction, loss, or degradation of wetlands. | No/No | No Beale sites are within designated wetlands. |
| California Wilderness Act | Wilderness area | CAC, Title 23, Chapter 3, Sections 2030 at seq.
CAC, Title 3, Division 3, Chapter 1.3 | Must administer area in such a manner as will leave it unimpaired as wilderness and preserve its wilderness character. | No/No | No Beale sites are wilderness areas. |
| California Fish and Game Code | Diversions, channeling, or other activity that modifies a stream or watercourse | Fish and Game Code, Division 6, Part 1, Chapter 2, Sections 3650 and 3651 | Must take action to protect fish and wildlife resources. | Yes/-- | There are bodies of water of the United States on some of the Beale sites. Hutchinson Creek runs through Site 2 and adjacent to Site 13. E27 Creek runs parallel to Site 17. Disturbance of these creeks could affect fish and wildlife resources. |
| California Wild and Scenic Rivers Act | Action that could affect a wild or scenic river | CAC, Division 3, Chapter 1.4 | Must avoid taking or assisting in action that will have direct adverse effect on scenic river. | No/No | There are no wild or scenic rivers on any of the Beale sites. |
| California Coastal Act of 1976 | Activities relating to the planning or management of coastal zone resources | Public Resources Code, Division 13, Section 21000 at seq.
CAC, Title 14, Division 2.5 | Activities in the California coastal zone must be consistent with approved state management programs. | No/No | The study area is an inland site with no direct access to coastal land. |
| Porter-Cologne Water Quality Control Act | Oceans and waters of the United States | California Water Code, Division 7, Chapter 482
CAC, Title 23, Chapter 3, Sections 2050 at seq. | Action to dispose of dredge material into ocean waters is prohibited without a permit. | No/No | No waters of sufficient size are located on any of the Beale sites to make dredge disposal feasible. |

Table 1 / (continued)

| Requirement | Prerequisites | Citation | Description | Applicable/Relevant and Appropriate | Comments |
|-------------|--------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(a) | New Class I disposal units should be located where natural geologic features provide optimum conditions for isolation of wastes from waters of the state. | Yes/- | There are bodies of water on some of the Beale sites. |
| | Waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(b)(1) | New Class I disposal units must be constructed on a site underlain by natural geologic materials of permeability not more than 1×10^{-6} cm/sec. | Yes/- | Soil permeabilities have not been measured; however, surface soil permeabilities are generally quite low; would be applicable if such actions were to occur. |
| | Waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(c) | New Class I disposal units must not be located in areas subject to inundations by 100-year floods. | Yes/- | Site 17, next to West Slough, is located on the edge of the 100-year flood plain. |
| | Waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(d) | New Class I disposal units must have a 200-foot setback from any Holocene fault. | No/No | There are no faults that have been displaced in Holocene time near any of the Beale AFB sites. |
| | Solid waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(e) | New Class I disposal units must be constructed outside areas of potential rapid geologic change. | No/No | None of the Beale sites are located in areas of rapid waste geologic change. |
| | Waste discharge to land of liquid or solid hazardous waste (Class I Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2531(f) | New Class I disposal units must be constructed outside areas subject to tsunamis, seiches, and surges. | No/No | None of the Beale sites are located in areas subject to tsunamis, seiches, and surges. |
| | Waste discharge to land of liquid and solid designated waste (Class II Waste Management Unit) | CAC, Title 23, Chapter 3, Section 2532(a) | New Class II waste management units should be located where site characteristics and containment structures isolate wastes from waters of the state. | Yes/- | There are bodies of water on some of the Beale sites. |
| | Waste discharge to land of liquid and solid designated waste (Class II Waste Management Unit) | CAC Title 23, Chapter 3, Section 2532(b)(1). | New Class II waste management units must be constructed on a site underlain by natural geologic materials of permeability not more than 1×10^{-6} cm/sec. | Yes/- | Soil permeabilities have not been measured; however, soil permeabilities are generally quite low; would be applicable if such actions were to occur. |

Table 3.7 (continued)

| Requirement | Prerequisites | Citation | Description | Applicable/Relevant and Appropriate | Comments |
|-------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------|
| Waste discharge to land of liquid and solid designated waste (Class II Waste 2532(c) Management Unit) | | CAC, Title 23, Chapter 3, Section 2532(c) | New Class II waste management units must be designed, constructed, operated, and maintained to prevent inundation or washout due to 100 year floods. | Yes/- | Site 17 next to Bear Slough is located on the edge of the 100 year flood plain. |
| Waste discharge to land of liquid and solid designated waste (Class II Waste 2532(d) Management Unit) | | CAC, Title 23, Chapter 3, Section 2532(d) | New Class II waste management units must have a 200-foot setback from any known Holocene fault. | No/No | There are no faults that have been displaced in Holocene time near any of the Beale AFB sites. |
| Waste discharge to land of liquid and solid designated waste (Class II Waste 2532(e) Management Unit) | | CAC, Title 23, Chapter 3, Section 2532(e) | New Class II waste management units may be located in areas of potential rapid geologic change if containment structures are designed, constructed, or maintained to prevent failure. | No/No | None of the Beale sites are located in an area of rapid geologic change. |
| Waste discharge to land of liquid and solid designated waste (Class II Waste 2532(f) Management Unit) | | CAC, Title 23, Chapter 3, Section 2532(f) | New Class II waste management units may be located in areas subject to tsunamis, seiches, and surge if designed, constructed, and maintained to preclude failure due to such events. | No/No | None of the Beale sites are located in areas subject to tsunamis, seiches, and surge. |
| Waste discharge to land of nonhazardous solid waste (Class III Waste 2533(a) Management Unit) | | CAC, Title 23, Chapter 3, Section 2533(a) | Class III landfill shall be located where site characteristics provide adequate separation between nonhazardous solid waste and waters of the state. | Yes/- | Some of the Beale sites' characteristics could be adequate. |
| Waste discharge to land of nonhazardous solid waste (Class III Waste 2533(b) Management Unit) | | CAC, Title 23, Chapter 3, Section 2533(b) | New Class III landfill shall be sited where soil characteristics, distance from waste to groundwater, and other factors will ensure no impairment of beneficial uses of surface water or of groundwater beneath or adjacent to the landfill. | Yes/- | Some of the Beale sites could be adequate. |
| Waste discharge to land of nonhazardous solid waste (Class III Waste 2533(c) Management Unit) | | CAC, Title 23, Chapter 3, Section 2533(c) | New Class III landfill shall be designed, constructed, operated, and maintained to | Yes/- | Site 17 next to Bear Slough is located on the edge of the 100-year flood plain. |

Table 1 / continued

| Requirement | Prerequisites | Citation | Description | Applicable/Relevant and Applicable | Comments |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------|
| Mullford-Carrell Air Resources Act (California Clean Air Act) | New waste discharge to land of nonhazardous solid waste (Class III Waste Management Unit) | (A, Title 2), Chapter 3, Section 25310 | Prevent inundation of waste at due to 100 year floods | No/No | There are no faults that have been displaced in Holocene time near any of the Beale AFB sites. |
| | Waste discharge to land of nonhazardous solid waste (Class III Waste Management Unit) | (A, Title 2), Chapter 3, Section 25310 | New Class III landfill should not be located on a known Holocene fault | No/No | None of the Beale sites are located in an area of rapid geologic change. |
| | Nonattainment area for ambient constituent | California Health and Safety Code, Division 26, Section 39000, et. seq.
AC, Title 17, Part 111, Chapter 1, Section 6000 et seq. | New Class III landfill may be located within areas of rapid geologic change if containment structures are designed, constructed, and maintained to preclude failure.
Major sources of air contaminants in areas not in attainment for air quality must undergo more stringent new source review | Yes/ | The Beale area is in attainment for ozone. |

NOTE: If a requirement is applicable, it cannot also be relevant and appropriate.

Table 1-8
INITIAL IDENTIFICATION OF POTENTIAL FEDERAL LOCATION-SPECIFIC ARARS

| Requirement | Prerequisites | Citation | Description | Applicable/
Relevant and
Appropriate | Comments |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resource Conservation
and Recovery Act
(RCRA) | RCRA hazardous waste,
treatment, storage, or
disposal | 40 CFR 264.18(a)
(42 USC 6901 et seq.) | New treatment, storage, or
disposal of hazardous waste
is prohibited within 61
meters (200 feet) of a fault
displaced in Holocene time. | No/No | No faults have been dis-
placed in Holocene time
near any of the Beale AFB
sites. |
| RCRA | RCRA hazardous waste, treat-
ment, storage, or disposal | 40 CFR 264.18(b)
(42 USC 6901 et seq.) | Treatment, storage, or
disposal facilities within
the 100-year flood plain
must be designed, con-
structed, operated, and
maintained to prevent
washout. | Yes/-- | Site 17 next to Beest
Slough is located on the
edge of the 100-year
flood plain. |
| Executive Order on
Flood Plains | Action that will occur in a
flood plain (i.e., lowlands
and relatively flat areas
adjoining inland and coastal
waters, and other flood-prone
areas) | Executive Order 11988,
Protection of Flood
Plains (40 CFR 6.302,
Appendix A) | Must take action to avoid
or minimize potential harm
to flood plains, and re-
store and preserve natural
and beneficial values. | Yes/No | In addition to Site 17,
Site 1 is located in a
lowland that could be
susceptible to light
flooding. |
| RCRA | Noncontainerized or bulk
liquid hazardous waste | 40 CFR 264.18(c)
(42 USC 6901 et seq.) | The placement of any non-
containerized or bulk liquid
hazardous waste in a salt
dome formation, salt bed
formation, underground mine,
or cave is prohibited. | No/No | None of the Beale sites
contain any salt dome
formations, underground
mines, or caves. No such
disposal is planned for
the site wastes. |
| National Archaeological
and Historical Pre-
servation Act | Alteration of terrain that
threatens significant
scientific, prehistorical,
historical, or archaeological
data | (16 USC Section 469)
36 CFR 65 | Must take action to recover
and preserve artifacts. | No/No | No known scientific, pre-
historic, or historic
artifacts are present at
any of the sites. |
| Fish and Wildlife
Coordination Act | Diversion channeling or
other activity that modifies
a stream or river (body of
water of the United States)
and affects fish or wildlife | (16 USC 661
et seq.) | Must take action to protect
fish or wildlife. | Yes/-- | There are waters of the
United States on some of
the Beale sites. Hutch-
inson Creek runs through
Site 2 and adjacent to
Site 13. Dry Creek runs
parallel to Site 17.
Disturbance of these
creeks could affect fish
and wildlife resources. |

Table 1-8 (Continued)

| Requirement | Prerequisites | Citation | Description | Applicable/
Relevant and
Appropriate | Comments |
|------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wild and Scenic Rivers Act | Activities that affect or may affect any of the rivers specified in Section 1276(a) | [16 USC 1271 et seq. Section 7(a)] | Must avoid taking or assisting in action that will have direct adverse effect on scenic river. | No/No | There are no scenic rivers on any of the Beale sites. |
| Coastal Zone Management Act | Activities affecting the coastal zone including lands thereunder and adjacent shorelands | (16 USC Section 1451 et seq.) | Must conduct activities in a manner consistent with approved state management programs. | No/No | The study area is in-land site with no direct access to coastal lands. |
| Clean Water Act (CWA) Section 404 | Oceans and waters of the United States | 40 CFR 125, Subpart M (42 USC 7401 et seq.) | Action to dispose of dredge material into ocean waters is prohibited without a permit. | No/No | No waters of sufficient size are located on any of the Beale sites to make dredge disposal feasible. |
| Marine Protection Resources and Sanctuary Act, Section 103 | Oceans and waters of the United States | 40 CFR 230, 231 (33 USC 1401 et seq., 16 USC 1431 et seq.) | Action to dispose of dredge material into ocean waters is prohibited without a permit. | Yes/-- | There are waters of the United States on some of the Beale sites. Hutchinson Creek runs through Site 2 and adjacent to Site 13. Dry Creek runs parallel to Site 17. |
| Historic Sites, Buildings, and Antiquities Act | Existence of natural landmarks | (16 USC 461-467) | Must avoid undesirable impacts upon landmarks. | No/No | There are no natural landmarks on any of the Beale sites. |
| Rivers and Harbors Act | Activities affecting navigable waters | 33 USC 401 et seq. | Substantive requirements of Section 10 must be met if an alternative developed would involve structures or work in or affect navigable waters. | No/No | There are no navigable waters on any of the Beale sites. |
| National Historic Preservation Act, Section 106 | Property included in or eligible for the National Register of Historic Places | (16 USC 470 et seq.) 36 CFR 600 | Must take action to preserve historic properties owned or controlled by federal agency. Must plan action to minimize harm to National Historic landmarks. | No/No | None of the Beale sites have been included in the National Register of Historic Places. |
| Endangered Species Act of 1973 | Critical habitat upon which endangered species or threatened species depends | (16 USC 1531 et seq.) 50 CFR 200, 50 CFR 402 | Must take action to conserve endangered species or threatened species. | Yes/No | With the exception of a beetle which lives in elderberry bushes, the only known endangered species at any of the |

Table I-8 (Continued)

| Requirement | Prerequisites | Citation | Description | Applicable/
Relevant and
Appropriate | Comments |
|----------------------------------------------|----------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Executive Order on
Protection of Wetlands | Wetland as defined by
Executive Order 11990,
Section 7 | Executive Order 11990
40 CFR 6.302,
Appendix A | Must take action to minimize the destruction, loss, or degradation of wetlands. | No/No | Beale sites are migrant. The Endangered Species Act will be an ARAR if elderberry bushes are disturbed. |
| Wilderness Act | Federally-owned area described as a wilderness area | (16 USC 1131 et seq.)
50 CFR 35.1 et seq. | Area must be administered in a manner that will leave it unimpaired as wilderness and preserve its wilderness character. | No/No | No Beale sites have been designated as Federal Wilderness Areas. |
| National Wildlife
Refuge System | Area designated as part of the National Wildlife Refuge System | (16 USC 668 d.d.
et seq.)
50 CFR Part 27 | Only actions that are allowed under the provisions of 16 USC, Section dd(c) may be undertaken in areas that are part of the National Wildlife Refuge System. | No/No | No Beale site has been designated as a National Wildlife Refuge. |
| Safe Drinking Water Act | A critical aquifer protection area as defined at 40 CFR 149.3 | (42 USC 300n)
40 CFR 146.4 et seq. | Actions must be taken pursuant to the aquifer's comprehensive management plan, if such a plan has been developed. | No/No | There are no critical aquifer protection areas on any of the Beale sites. |
| Clean Air Act | Nonattainment area for emitted constituent | 40 CFR 50 et seq.
(42 USC 7401) | Major sources of air contaminants in areas not in attainment for air quality must undergo more stringent new source review. | Yes/-- | The Beale area is non-attainment for ozone. |

NOTE:--If a requirement is applicable, it cannot also be relevant and appropriate.

SAC/T116/078.50

and restore and preserve natural and beneficial values. These actions would probably need to be taken if remedial actions are to occur in Site 17.

The federal Fish and Wildlife Coordination Act and the California Fish and Game Code require consultation with the Department of Fish and Wildlife prior to any action that would alter a U.S. body of water. Hutchinson Creek runs through Site 2 and parallel to Site 13, and Dry Creek runs parallel to Site 17. Disturbance of these creeks could affect fish and wildlife resources. The Department of Fish and Wildlife should probably be contacted prior to any disturbance of these creeks.

The federal Endangered Species Act and the California Endangered Species Act require action to conserve endangered or threatened species and consultation with the Department of Interior. With the exception of a beetle that lives in elderberry bushes, the only known endangered species at any of the Beale sites are migrant. The Endangered Species Act will likely be applicable if elderberry bushes are disturbed.

The Porter-Cologne Water Quality Control Acts contains specific locational requirements for Class I, II, and III land disposal facilities. The locational requirements are different for Class I, II, and III landfills. The requirements are presented in Table I-7 and are generally in the form of restrictions on construction of facilities in flood plains, fault areas, and areas of rapid geologic change. There are also requirements that certain natural geologic features be present.

Under the federal Clean Air Act, an area that does not attain primary and secondary ambient air quality standards will be designated a nonattainment area. Major sources of air contaminants in areas not in attainment for air quality standards must undergo more stringent new source review and permitting under CARA; CARA is therefore a potential location-specific ARAR in Table I-7.

ACTION-SPECIFIC

An analysis of the action-specific ARARs has not been completed at this time for the Beale AFB sites, but it will be necessary to develop these ARARs in the future. A discussion of action-specific ARARs has been included here for informational purposes.

Action-specific ARARs define acceptable treatment and disposal procedures for hazardous substances. These ARARs generally set performance, design, or other action-specific controls or restrictions on activities related to management of hazardous substances or pollutants. These requirements are triggered by the particular remedial activities selected to accomplish a remedy. Because there are usually several alternative actions for any remedial site, very different requirements can come into play. The action-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how or to what level clean-up will be achieved.

SUMMARY AND CONCLUSIONS

The information presented in this ARARs analysis provides a guideline for the development of remedial alternatives. The ultimate goal of the evaluation of ARARs is to provide the information needed to develop remedial goals and to attain a degree of cleanup of a site that is consistent with federal and state laws and guidances. Location- and chemical-specific ARARs also provide the information needed to refine and focus remaining data requirements. ARARs must be attained for hazardous constituents remaining onsite at the completion of the remedial action. Compliance with ARARs should also be ensured during implementation of remedial actions in order to protect public health and the environment.

ARARs evaluation is also an integral part of the evaluation of candidate remedial action alternatives. While location- and chemical-specific ARARs provide some information, the critical ARAR information for the evaluation of remedial alternatives must come from the action-specific ARARs. Therefore, action-specific ARARs must be developed as information becomes available during the development of the remedial alternatives.

A risk assessment will also be necessary prior to evaluation of remedial alternatives. ARARs may not address all contaminants, and ARARs may not adequately address the threat of contaminants to public health and welfare. A risk assessment will provide appropriate cleanup levels for those contaminants that do not have ARARs, based on evaluation of the threat to human health and the environment. It is imperative that action-specific ARARs be developed, chemical- and location-specific ARARs be further specified, and a risk assessment be conducted for the Beale sites prior to the evaluation of remedial alternatives.

APPENDIX J

NO FURTHER ACTION DECISION DOCUMENTS FOR
SITES 7, 12, AND 17

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

SUMMARY OF ALTERNATIVE SELECTION

BEALE AIR FORCE BASE
MARYSVILLE, CALIFORNIA
SITE NO. 7
ARMY BIOLOGICAL PRODUCTION SITE

UNITED STATES AIR FORCE
OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL)
TECHNICAL SERVICES DIVISION (TS)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

J-7-1

SAC/T104/058.50

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

I. BASE/INSTALLATION/FACILITY

Beale Air Force Base
Installation Restoration Program
Army Biological Production Site, Site No. 7

II. NAME AND LOCATION

Army Biological Production Site, Site No. 7
Beale Air Force Base
Yuba County
California

III. STATEMENT OF BASIS

This decision is based upon the Installation Restoration Program (IRP) Phase I and Phase II, Stage 1, studies conducted at Beale Air Force Base. Final reports from these studies are dated April 1984 and May 1987, respectively.

IV. DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at the Army Biological Production Site, I have determined that no significant risk or threat to public health or the environment exists. Therefore, I have determined that no further action is required.

V. DECLARATION OF CONSISTENCY WITH CERCLA AS AMENDED BY SARA AND THE NCP

I have determined that the selected remedy of no further action is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate, and is cost effective. Contaminant levels at the site were determined to present no imminent or substantial threat to human health or the environment. No treatment or further actions are necessary.

United States Air Force

State of California

U.S. Environmental Protection Agency

I. INTRODUCTION

This document summarizes the rationale for no further action (NFA) at the Army Biological Production Site (Site No. 7) at Beale Air Force Base (AFB), Marysville, California. This section provides a description of the site. Additional sections describe site history, current site status, including presence or absence of contaminants, and the data analysis that led to the NFA decision. The last two sections explain the NFA decision and describe regulatory agency and public involvement in the decision.

1.1 SITE LOCATION AND DESCRIPTION

1.1.1 LOCATION, ADDRESS

The Army Biological Production Site (Site No. 7) is located on Beale AFB in Yuba County, 10 miles east of Marysville, California. The site is adjacent to the Beale Rod and Gun Club, southeast of the base sewage treatment plant (see Figure J-7-1). Both the south and west borders of the base are within 1 mile of the site.

1.1.2 AREA OF SITE, TOPOGRAPHY, LOCATED IN FLOOD PLAIN

The elevation of the site is approximately 95 feet above sea level.

1.1.3 ADJACENT LAND USES

The area around the base is sparsely populated, and the primary land use is agriculture.

1.1.4 LOCATION AND DISTANCE TO NEARBY POPULATIONS

The base housing area, inhabited by approximately 6,000 people, is located about 4.5 miles east of the site. Other cities and towns in the area include Marysville, Yuba City, and Olivehurst to the west, and Wheatland to the south.

1.1.5 GENERAL SURFACE AND GROUNDWATER RESOURCES

The site is one-half mile south of Hutchinson Creek, a small creek that forms in the foothills north of Beale AFB and flows south and west off the base property.

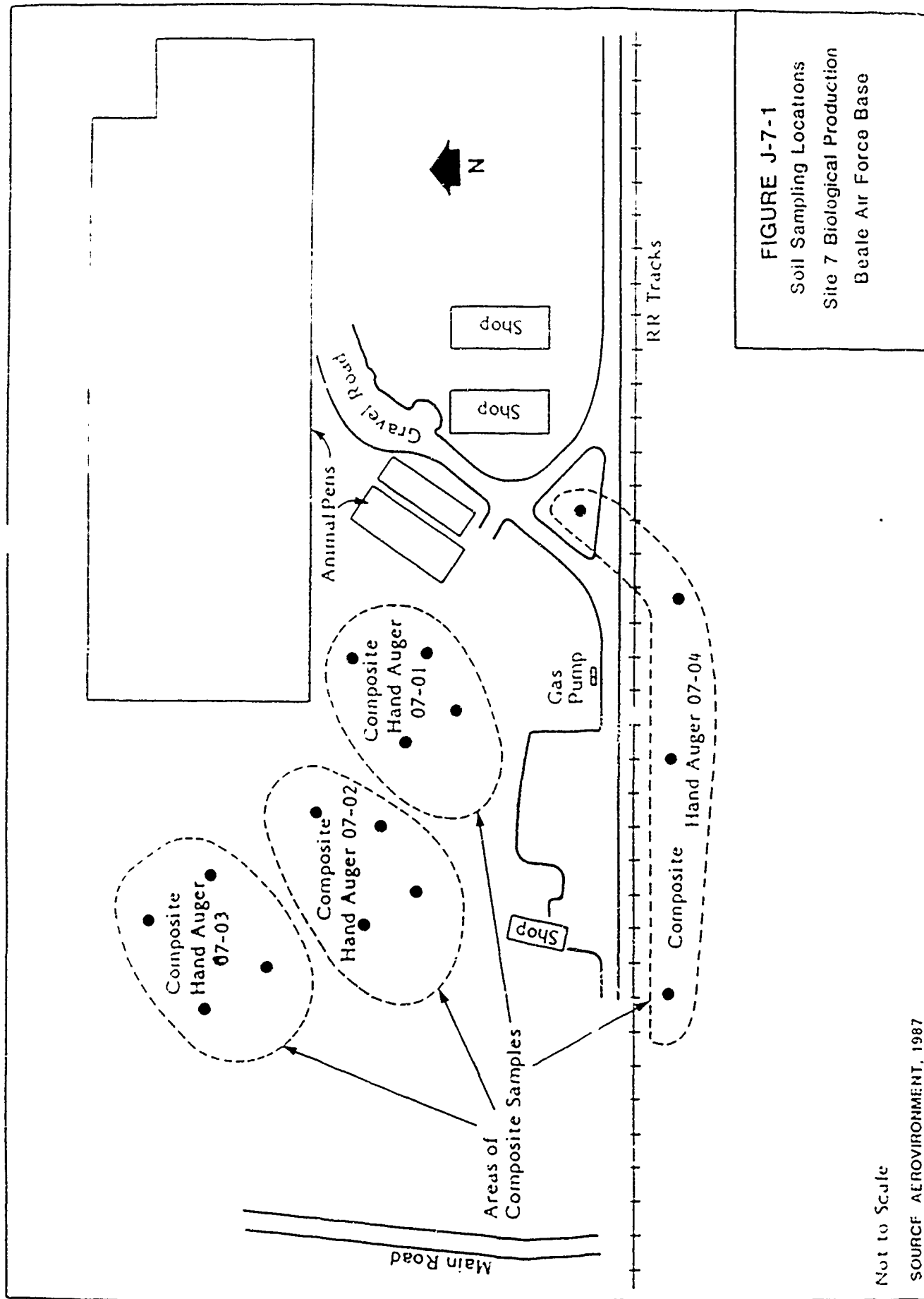


FIGURE J-7-1
 Soil Sampling Locations
 Site 7 Biological Production
 Beale Air Force Base

Not to Scale

SOURCE: AEROENVIRONMENT, 1987

1.1.6 SURFACE AND SUBSURFACE FEATURES

The site is a grassland area at very low relief. The soil consists of poorly drained, medium-textured clay and hardpans of the Yokohl-Kimball Association which formed on the Victor Formation. The Victor Formation consists of heterogeneous mixtures of clay, silt, sand, and gravel deposited by streams draining the Sierra Nevada.

II. SITE HISTORY

2.1 DESCRIBE SITE HISTORY IN TERMS OF:

2.1.1 HOW SITE WAS ESTABLISHED

This site was formerly used by the U.S. Army to produce wheat stem rust (Puccinia graminus tritici).

2.1.2 PERIOD OF OPERATION

Wheat stem rust production took place from 1962 to 1969.

2.1.3 HISTORY OF OWNERSHIP

The site is currently used by the Beale Rod and Gun Club. Game birds are housed in large pens on the site.

2.1.4 SITE USES OVER PERIOD OF OPERATION

The chemicals used at the site during wheat stem rust production included freon, carbon dioxide, ethylene oxide, and possibly trichloroethylene (TCE).

2.1.5 TYPE OF PERMITS APPLIED FOR AND/OR APPROVED, PERMITTING AUTHORITY

Data on permits related to the wheat stem rust production is not known.

2.1.6 HISTORY OF RELEASES

In 1969, the production stocks remaining at Beale were destroyed and the material was rendered inactive by chemical treatment and incineration. The residual ash was assayed and plowed into the soil at the site to a depth of 6 inches.

The entire destruction process was accomplished successfully, in complete cooperation with federal and state agricultural authorities.

2.1.7 WASTE CHARACTERISTICS

An IRP Phase I Records Search indicated that this site did not have a significant potential for contaminant migration (Engineering-Science, 1984). The site received a HARM score of 52.

The site was sampled and characterized as part of the Beale AFB IRP Phase II, Stage 1 study. No significant contamination was detected at the site (AeroVironment, 1987).

III. CURRENT SITE STATUS

3.1 PHYSIOGRAPHY AND CLIMATOLOGY

Beale AFB is located in the eastern part of the Sacramento Valley which, together with San Joaquin Valley to the south, constitutes the Great Central Valley of California. The Great Valley extends from Bakersfield in the south to Redding in the north. It is about 60 miles across, and is bordered to the east by Sierra Nevada Foothills and to the west by the Coast Ranges.

Beale AFB displays characteristics of both the Great Valley and the Sierra Nevada geomorphic provinces. The western portion of the base is relatively flat grassland, characteristic of the Great Valley. The eastern areas of the base consist of gently sloping hills, which are the foothills of the Sierra Nevadas.

The elevation of Beale AFB ranges from 80 to 90 feet above the National Geodetic Vertical Datum of 1929 (NGVD) along the western and southwestern boundary, to more than 400 feet in the northeastern part of the base. The rise in elevation occurs along gently sloping hills common to the Sierra Nevada Foothills, which rise gradually to over 13,000 feet NGVD at the Sierra Nevada crests.

The Sacramento River drains the Sacramento Valley flowing southerly to the Sacramento-San Joaquin Delta for eventual discharge through San Francisco Bay into the Pacific Ocean. The Feather River, a tributary of the Sacramento River, flows southward west of the base. Both the Yuba River to the north of Beale Air Force Base, and the Bear River to the south, drain from east to west into the Feather River. Several small creeks flow from east to west across the base and converge with either the Bear River or the Feather River, southeast of the base.

The Beale AFB area climate is fairly typical of the Great Central Valley. Mean winter temperatures (November through April) are in the mid-40s (degrees Fahrenheit) to mid-50s, with winter lows in the 20s and winter highs in the 70s and 80s. Mean summer temperatures (May through October) are in the mid-60s to upper 70s, with summer highs greater than 100°F and summer lows in the high 40s and low 50s.

Annual precipitation fluctuates widely in California, with drought conditions followed by heavy rainfall years, and vice versa. The mean annual precipitation rate for the Beale AFB area is 23.1 inches, based on data from 1960 to 1985. Almost 95 percent of this rainfall occurs during the rainy period from October to April.

3.2 SOILS

3.2.1 SOIL DESCRIPTION

Soils at Beale AFB consist of three predominant types. The western third of the base is underlain by the Yokohl-Kimball Association, which formed on moderately old alluvial fans. The soils consist of poorly drained, medium-textured clay and hardpans developed on the Victor Formation.

3.2.2 SOIL CONTAMINATION

Surface soil at Site 7, the Biological Production Site, was sampled on November 20, 1985. The sampling was conducted in a loose grid pattern that included a large area north of the railroad tracks and an area just south of the tracks. Sixteen samples were collected from a depth of zero to 0.5 feet. At the laboratory, four groups of four samples (related by vicinity) were composited and analyzed for volatile organic compounds and heavy metals. Table J-7-1 shows the soil sampling results for Site 7.

The composite sample from an area south of the pheasant pens and north of the railroad tracks contained 12 mg/kg silver, which is slightly elevated above background (approximately 4 mg/kg). Previous analyses of the residual ash from production stock incineration indicate the level of silver present in the residue was about 2 ppm (mg/kg) (Engineering Science, 1984). No other contaminants were found above background levels.

Table J-7 I

Soil Sampling Results
Site 7 - Biological Production (DA-4)

SITE 7 - BIOLOGICAL PRODUCTION (DA-4)
Airux Report # 8511-048
Sampled 11/20/85 for 8010/8020 and Metals
Units-UG/G

| Aircore Report # 8311-048 | | | Units-UG/G | | | | | | | | | | | | | | |
|-----------------------------------------------|--------|-----|------------|--------------|-----|----|----|------|------|-----|-------|--------------------|------------|-------------------------|---------------|--|------|
| ACUREX # SAMPLE # | | | DEPTH (FT) | Total Metals | | | | | | | | | | 8010 | | | 8020 |
| | | | | As | Ba | Cd | Cr | Pb | Hg | Se | Ag | Methylene Chloride | Chloroform | 1,1,1-TCR Tetrachloride | Ethyl Benzene | | |
| 810779-82 | 7-1-H1 | 0.5 | 13 | 89 | 0.6 | 20 | 12 | <.05 | 0.4 | 12 | 0.002 | 0.0004 | | 0.001 | | | |
| 810783-86 | 7-2-H1 | 0.5 | 16 | 89 | 0.6 | 29 | 13 | <.05 | 0.4 | 2.8 | 0.005 | 0.00042 | 0.00008 | 0.0014 | | | |
| 810787-90 | 7-3-H1 | 0.5 | 12 | 82 | 0.6 | 25 | 11 | <.05 | <0.2 | 2.8 | 0.002 | 0.00022 | .00004 | 0.0006 | | | |
| 810791-94 | 7-4-H1 | 0.5 | 6.8 | 71 | 0.4 | 18 | - | <.05 | <0.2 | 6 | 0.002 | 0.0003 | | 0.0003 | | | |
| DOHS TTLC: 500 10050 190 2500 1000 20 100 500 | | | | | | | | | | | | | | | | | |

DOHS TTLC: 500 10000 190 2500 1000 20 100 500

Source: AeroVironment, 1987

Note: Only those results reported at concentrations above detection are presented.

3.3 GROUNDWATER

3.3.1 HYDROGEOLOGIC SETTING

Beale AFB is located within the Sacramento Basin Hydrologic Area along the eastern basin margin. Groundwater movement along this margin, at the turn of the century, was from the Sierra Nevada Foothills in the east toward the Feather and Sacramento Rivers to the west. The river system thus served as discharge points for the groundwater. As a result of extensive groundwater extraction, primarily for crop irrigation since the turn of the century, the major discharge for the groundwater has been through pumping. This has altered the direction of groundwater movement in many places throughout the Sacramento Valley, including areas near Beale AFB. The rivers no longer serve as groundwater discharge points. In fact, water from the river channels recharge the groundwater system.

Another source of recharge to the regional groundwater reservoir is along formation outcrops in the Sierra Nevada Foothills, which at depth constitute the major water supply aquifers. Percolation of rainwater or irrigation waters through these materials reaches the groundwater reservoir. However, only lands with sufficiently permeable soil will permit percolation.

In the Sacramento Valley, groundwater occurs under unconfined and confined conditions. Holocene deposits, such as flood plains and alluvial fans, usually contain unconfined groundwater, except when the sediments are overlain by clayey (flood plain) materials. In older materials, the water may be unconfined at shallow depths and completely confined at greater depths. The depth to the water varies from less than 10 feet in the central part of the valley to almost 100 feet along valley margins.

Beale AFB straddles the eastern groundwater basin margin. A pumping trough is located south-southwest of the base, bordered by the Yuba, Feather, and Bear Rivers. Groundwater flow is predominantly westerly, with the possibility of localized gradients to the northwest and southwest.

Recharge to the groundwater reservoir at Beale is ultimately from instream percolation from the Yuba River, north of the base, manifested as groundwater inflow from the north, northwest, and northeast. Recharge may also occur from infiltration of precipitation, irrigation waters, and intermittent creeks. These latter recharge sources would

strongly depend on the presence of hardpan, since hardpan severely restricts vertical movement of water.

Discharge of groundwater from the aquifer system occurs mainly from pumping. At Beale, groundwater is pumped from nine water supply wells located within the base boundary.

3.3.2 GROUNDWATER CONTAMINATION

No groundwater samples were obtained specifically for investigation of this site. Base production wells were sampled in early 1986 as part of IRP Phase II, Stage 1 activities. Samples were analyzed for volatile and extractable organics, metals, oil and grease, and phenols. Although several metals were detected above the analytical detection limit (but below the limit of quantification), no evidence of contamination was noted.

3.4 SURFACE WATER

3.4.1 FLOW RATES

No surface water samples were obtained specifically for investigation of this site. No major streams flow through or are adjacent to the site. Hutchinson Creek passes within one-half mile to the north.

3.4.2 CONTAMINANT LOADS

No surface water samples were obtained specifically for investigation of this site. No major streams flow through or are adjacent to the site. Hutchinson Creek passes within one-half mile to the north.

3.5 RECEPTORS

3.5.1 HUMAN

There are no potential receptors evident at the Army Biological Production Site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

3.5.2 WILDLIFE

There are no potential receptors evident at the Army Biological Production Site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

IV. DATA ANALYSIS/RISK ASSESSMENT

4.1 SOILS

In the IRP Phase II, Stage 1 study, samples were collected and composited from the top 6 inches of soil at 16 locations around the biological production site. The analysis of the four composite samples showed no organic chemical contamination and only slightly elevated silver concentrations (2.5 to 12 mg/kg). The silver concentrations are not considered environmentally significant. Army documents reviewed during the IRP Phase I record search reported that all chemicals used at the biological production facility were incinerated, and that no contamination existed at the site. Results of this sampling program supported those documents. No contamination appears to exist in soils at this site.

4.2 GROUNDWATER

Groundwater samples were not collected at this site.

4.3 SURFACE WATER

Surface water samples were not collected at this site.

4.4 AIR

Air samples were not collected at this site.

4.5 SUMMARY

Risk assessments are conducted to better understand the nature of chemical releases from a site, the potential pathways of human exposure, the degree to which releases (if any) could violate applicable standards and criteria, and a measure of the potential threat to public health as a result of such releases.

Based on analysis of the available data, there is no substantial current or future risk to public health resulting from the Army Biological Production Site. No source of contamination was detected, and therefore there is little probability of chemical releases to environmental transport media such as soil, groundwater, surface water, or air. Because no contamination source or environmental pathways exist, there is little or no probability of human exposure or risk to public health associated with the site.

V. SELECTED ACTION

Sixteen surface soil samples were collected at the Biological Production Site to evaluate the possibility of contamination resulting from biological research previously conducted by the Army at this location. The results show that no contamination exists at this site. This finding agrees with Army reports, which indicate that no contamination was left after the Army departed from the site.

5.1 ALTERNATIVES EVALUATION

Alternatives considered for the Biological Production Site include:

1. No further action: No contaminants remain at the site and no threat to the environment exists, so no further action need be taken.
2. Additional shallow soil sampling: If further questions exist about the site conditions, samples could be collected at more locations around the site and at depths greater than zero to 0.5 foot.

5.1.1 THE SELECTED ACTION

The no further action alternative was selected, based on the results of IRP Phase II, Stage 1 study. No contamination was detected at the sampled locations, and no other contamination is believed to exist at the site.

This alternative was proposed in the IRP Phase II, Stage 1 Report (AeroVironment, 1987), and the California Department of Health Services and the Regional Water Quality Control Board have concurred with the "no action" alternative.

5.2 CONSISTENCY WITH ENVIRONMENTAL LAWS

5.2.1 ARAR COMPLIANCE

None of the samples collected at the Army Biological Production Site had concentrations of contaminants that approached or exceeded applicable or relevant federal or state standards or guidelines for the protection of human health and the environment. Therefore, no regulatory requirements for further investigative or remedial actions are triggered.

Federal, state, and local laws, regulations, standards, policies, and criteria considered include the Resource

Conservation and Recovery Act, the Clean Air Act, the National and California Ambient Air Quality Standards, the Department of Transportation Hazardous Material Transport rules, Federal Water Quality Criteria, the National Environmental Policy Act, the California Environmental Quality Act, federal and state worker health and safety requirements, National Pollution Discharge Elimination System requirements, EPA's groundwater strategy, the California Health and Safety Code, the California Hazardous Wastes Control Act, the California Administrative Code (Titles 22 and 23), the California Applied Action Levels for Toxic Waste Sites, and applicable local ordinances and requirements.

VI. REGULATORY AGENCY AND PUBLIC INVOLVEMENT

6.1 REGULATORY AGENCIES

Federal, state, and local regulatory agencies have provided review and comment on IRP activities at Beale AFB since the initiation of the program in 1983. Involved agencies include the U.S. Environmental Protection Agency (EPA), the California Department of Health Services (DHS), the Central Valley Regional Water Quality Control Board (RWQCB), and the Yuba County Health Department.

In late 1986, copies of the draft IRP Phase II, Stage 1 report recommending no further action at the Army Biological Production site were distributed to the agencies for review and comment. DHS and the RWQCB provided written comments (DHS, 1987; RWQCB, 1987). These comments were responded to on a point-by-point basis in letters to DHS and RWQCB from the Beale AFB Commander (Department of the Air Force, 1987a and 1987b).

Agency comments were also considered in finalization of the IRP Phase II, Stage 1 report (AeroVironment, 1987). Comments on the Army Biological Production Site indicate that DHS and the RWQCB generally concur with the recommended no further action alternative. This No Further Action Decision Document will be distributed to the agencies for formal concurrence.

6.2 PUBLIC INVOLVEMENT

Public involvement regarding IRP issues at Beale AFB has been coordinated by the Wing Public Affairs Office. Once the Record of Decision regarding no further action at the Army Biological Production Site has been approved, the

appropriate public notification and review processes will be conducted.

6.3 RESPONSES TO ALL PUBLIC COMMENTS

All public comments will be addressed following public notification and review processes as described in Section 6.2.

REFERENCES

Engineering Science. Installation Restoration Program - Phase I - Record Search, Beale Air Force Base, California. Prepared for the United States Air Force Strategic Air Command. April 1984.

AeroVironment, Inc. Installation Restoration Program - Phase II - Confirmation/Quantification - Stage 1, Beale Air Force Base, California. Prepared for Headquarters Strategic Air Command/Command Surgeon's Office. May 1987.

California Department of Health Services (DHS), 1987a. Letter from Gunther L. Sturm, Senior Sanitary Engineer, Sanitary Engineering Branch, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. January 29, 1987.

California Regional Water Quality Control Board, Central Valley Region (RWQCB), 1987a. Letter from Karen A. O'Haire, Chief, North Valley Regulatory Unit, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. March 24, 1987.

Department of the Air Force, 1987a. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to David Wang, Toxic Substances Control Division, Department of Health Services. June 10, 1987.

Department of the Air Force, 1987b. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to Karen O'Haire and Mike Floyd, Regional Water Quality Control Board. June 11, 1987.

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

SUMMARY OF ALTERNATIVE SELECTION

BEALE AIR FORCE BASE
MARYSVILLE, CALIFORNIA
SITE NO. 12
ENTOMOLOGY BUILDING 440

UNITED STATES AIR FORCE
OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL)
TECHNICAL SERVICES DIVISION (TS)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

J-12-1

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

I. BASE/INSTALLATION/FACILITY

Beale Air Force Base
Installation Restoration Program
Entomology Building 440, Site No. 12

II. NAME AND LOCATION

Entomology Building 440, Site No. 12
Beale Air Force Base
Yuba County
California

III. STATEMENT OF BASIS

This decision is based upon the Installation Restoration Program (IRP) Phase I and Phase II, Stage 1, studies conducted at Beale Air Force Base. Final reports on these studies are dated April 1984 and May 1987, respectively.

IV. DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at the Entomology Building 440 site, I have determined that no significant risk or threat to public health or the environment exists. Therefore, I have determined that no further action is required.

V. DECLARATION OF CONSISTENCY WITH CERCLA AS AMENDED BY SARA AND THE NCP

I have determined that the selected remedy of no further action is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate, and is cost effective. Contaminant levels at the site were determined to present no imminent or substantial threat to human health or the environment. No treatment or further actions are necessary.

United States Air Force

State of California

U.S. Environmental Protection Agency

I. INTRODUCTION

This document summarizes the rationale for no further action (NFA) at the Entomology Building 440 site (Site No. 12) at Beale Air Force Base (AFB), Marysville, California. This section provides a description of the site. Additional sections describe site history, current site status, including presence or absence of contaminants, and the data analysis that led to the NFA decision. The last two sections explain the NFA decision and describe regulatory agency and public involvement in the decision.

1.1 SITE LOCATION AND DESCRIPTION

1.1.1 LOCATION, ADDRESS

The Entomology Building 440 site (Site No. 12) is located on Beale AFB in Yuba County, 10 miles east of Marysville, California. It is just east of J Street, approximately 2 miles north of the Beale Rod and Gun Club, and 2 miles south of the Fire Protection Training Area (see Figure J-12-1). The site is approximately 1 mile east of the base's west border.

1.1.2 AREA OF SITE, TOPOGRAPHY, LOCATED IN FLOOD PLAIN

The elevation of the site is approximately 120 feet above sea level.

1.1.3 ADJACENT LAND USES

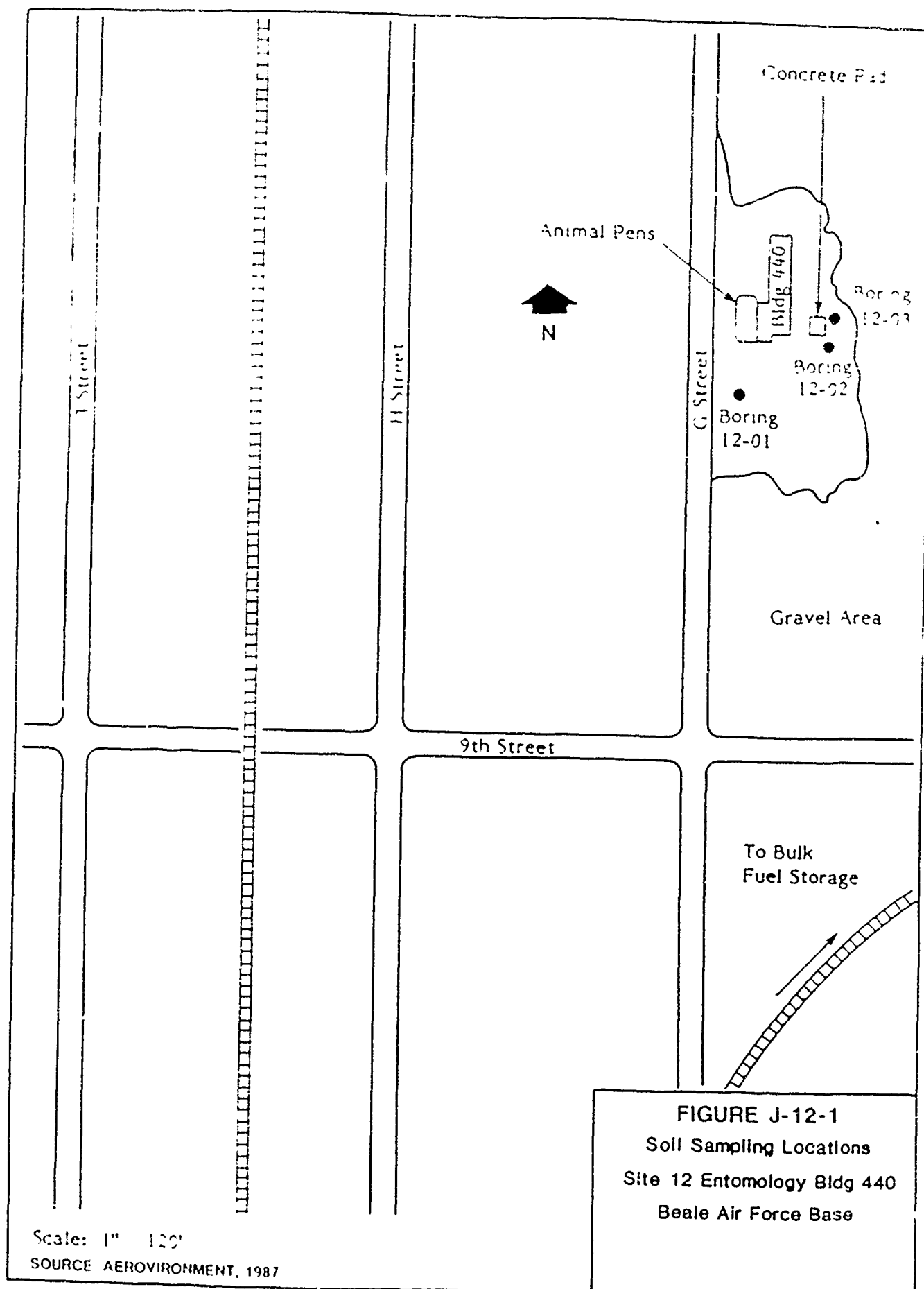
The area around the base is sparsely populated, and the primary land use is agriculture.

1.1.4 LOCATION AND DISTANCE TO NEARBY POPULATIONS

The base housing area, inhabited by approximately 6,000 people, is located about 4.5 miles east of the site. Other cities and towns in the area include Marysville, Yuba City, and Olivehurst to the west, and Wheatland to the south.

1.1.5 GENERAL SURFACE AND GROUNDWATER RESOURCES

The site is approximately 1 mile west of Hutchinson Creek as it flows from north to south, before turning west off the base.



1.1.6 SURFACE AND SUBSURFACE FEATURES

The site consists of a concrete pad adjacent to the south-east corner of Building 440 and an area of low-lying ground 50 feet east of the southeast corner of the building.

II. SITE HISTORY

2.1 DESCRIBE SITE HISTORY IN TERMS OF:

2.1.1 HOW SITE WAS ESTABLISHED

Building 440 was formerly used as the base entomology shop.

2.1.2 PERIOD OF OPERATION

The entomology shop was operable from 1965 to 1980.

2.1.3 HISTORY OF OWNERSHIP

Building 440 is currently used by the base animal control officer to house stray domestic animals.

2.1.4 SITE USES OVER PERIOD OF OPERATION

Chemicals used for pest control were stored and mixed here.

2.1.5 TYPE OF PERMITS APPLIED FOR AND/OR APPROVED, PERMITTING AUTHORITY

Data on permits related to the entomology shop is not known.

2.1.6 HISTORY OF RELEASES

Two areas near the building reportedly received spills of chemicals in the past. These two areas are a concrete pad next to the southeast corner of the building and an area of low lying ground 50 feet east of the southeast corner of the building.

2.1.7 WASTE CHARACTERISTICS

An IRP Phase I Records Search indicated that this site did not have a significant potential for contaminant migration (Engineering Science, 1984). The site received a HARM score of 48. The site was sampled and characterized as part of the Beale AFB IRP Phase II, Stage 1 study. No significant contamination was detected at the site (AeroVironment, 1987).

III. CURRENT SITE STATUS

3.1 PHYSIOGRAPHY AND CLIMATOLOGY

Beale AFB is located in the eastern part of the Sacramento Valley which, together with San Joaquin Valley to the south, constitutes the Great Central Valley of California. The Great Valley extends from Bakersfield in the south to Redding in the north. It is about 60 miles across, and is bordered to the east by Sierra Nevada Foothills and to the west by the Coast Ranges.

Beale AFB displays characteristics of both the Great Valley and the Sierra Nevada geomorphic provinces. The western portion of the base is relatively flat grassland, characteristic of the Great Valley. The eastern areas of the base consist of gently sloping hills, which are the foothills of the Sierra Nevadas.

The elevation of Beale AFB ranges from 80 to 90 feet above the National Geodetic Vertical Datum of 1929 (NGVD) along the western and southwestern boundary, to more than 400 feet in the northeastern part of the base. The rise in elevation occurs along gently sloping hills common to the Sierra Nevada Foothills, which rise gradually to over 13,000 feet NGVD at the Sierra Nevada crests.

The Sacramento River drains the Sacramento Valley flowing southerly to the Sacramento-San Joaquin Delta for eventual discharge through San Francisco Bay into the Pacific Ocean. The Feather River, a tributary of the Sacramento River, flows southward west of the base. Both the Yuba River to the north of Beale Air Force Base, and the Bear River to the south, drain from east to west into the Feather River. Several small creeks flow from east to west across the base and converge with either the Bear River or the Feather River, southeast of the base.

The Beale AFB area climate is fairly typical of the Great Central Valley. Mean winter temperatures (November through April) are in the mid-40s (degrees Fahrenheit) to mid-50s, with winter lows in the 20s and winter highs in the 70s and 80s. Mean summer temperatures (May through October) are in the mid-60s to upper 70s, with summer highs greater than 100°F and summer lows in the high 40s and low 50s.

Annual precipitation fluctuates widely in California, with drought conditions followed by heavy rainfall years, and

vice versa. The mean annual precipitation rate for the Beale AFB area is 23.1 inches, based on data from 1960 to 1985. Almost 95 percent of this rainfall occurs during the rainy period from October to April.

3.2 SOILS

3.2.1 SOIL DESCRIPTION

Soils at Beale AFB consist of three predominant types. The western third of the base is underlain by the Yokohl-Kimball Association, which formed on moderately old alluvial fans. The soils consist of poorly drained, medium-textured clay and hardpans developed on the Victor Formation.

3.2.2 SOIL CONTAMINATION

Three soil borings were completed at Site 12 on November 13, 1985. Boring 12-01, the background boring, was located approximately 75 feet south of Building 440. Borings 12-02 and 12-03 were drilled near the edge of the small concrete pad located approximately 30 feet east of the southeast corner of the building. The pad may have been used as a pesticide mixing and washing area at the time the building served as an entomology shop (1965 to 1980).

Samples were taken from each boring at depths of 1.5 feet, 6.5 feet, and 11.5 feet. The 6.5- and 11.5-foot samples were submitted to the laboratory but not analyzed, pending results from analysis of the 1.5-foot samples for pesticides and herbicides. Table J-12-1 shows the laboratory results for the 1.5-foot samples.

The insecticide 4,4-DDE was detected in Boring 12-03 at a level twice the method detection limit, but no further evidence of pesticide or herbicide contamination was found at the site. Deep samples were not analyzed because samples of upper soils did not show significant contamination.

3.3 GROUNDWATER

3.3.1 HYDROLOGIC SETTING

Beale AFB is located within the Sacramento Basin Hydrologic Area along the eastern basin margin. Groundwater movement along this margin, at the turn of the century, was from the Sierra Nevada Foothills in the east toward the Feather and Sacramento Rivers to the west. The river system thus served as discharge points for the groundwater. As a result of

J-12-7

Table J-12-1

Soil Sampling Results
Site 12 - Entomology Building No. 440

Sampled 11/13/85 for 509 A&B
UNITS- UG/G

| SITE 12- ENTOMOLGY BUILDING #440 | | | |
|----------------------------------|----------------|---------------|-----------------|
| Acurex Report # 851A-033 | | | |
| ACUREX # | PV
SAMPLE # | DEPTH
(FT) | 509A
4-4-DOE |
| 904270 | 12-1-S1 | 1.5 | |
| 904271 | 12-1-S2 | 6.5 | |
| 904273 | 12-2-S1 | 1.5 | |
| 904274 | 12-2-S2 | 6.5 | |
| 904276 | 12-3-S1 | 1.5 | 0.04 |
| 904277 | 12-3-S2 | 6.5 | |

Note: Only those results reported at concentrations above detection are presented.

Source: AeroVironment, 1987

extensive groundwater extraction, primarily for crop irrigation since the turn of the century, the major discharge for the groundwater has been through pumping. This has altered the direction of groundwater movement in many places throughout the Sacramento Valley, including areas near Beale AFB. The rivers no longer serve as groundwater discharge points. In fact, water from the river channels recharge the groundwater system.

Another source of recharge to the regional groundwater reservoir is along formation outcrops in the Sierra Nevada Foothills, which at depth constitute the major water supply aquifers. Percolation of rainwater or irrigation waters through these materials reaches the groundwater reservoir. However, only lands with sufficiently permeable soil will permit percolation.

In the Sacramento Valley, groundwater occurs under unconfined and confined conditions. Holocene deposits, such as flood plains and alluvial fans, usually contain unconfined groundwater, except when the sediments are overlain by clayey (flood plain) materials. In older materials, the water may be unconfined at shallow depths and completely confined at greater depths. The depth to the water varies from less than 10 feet in the central part of the valley to almost 100 feet along valley margins.

Beale AFB straddles the eastern groundwater basin margin. A pumping trough is located south-southwest of the base, bordered by the Yuba, Feather, and Bear Rivers. Groundwater flow is predominantly westerly, with the possibility of localized gradients to the northwest and southwest.

Recharge to the groundwater reservoir at Beale is ultimately from instream percolation from the Yuba River, north of the base, manifested as groundwater inflow from the north, northwest, and northeast. Recharge may also occur from infiltration of precipitation, irrigation waters, and intermittent creeks. These latter recharge sources would strongly depend on the presence of hardpan, since hardpan severely restricts vertical movement of water.

Discharge of groundwater from the aquifer system occurs mainly from pumping. At Beale, groundwater is pumped from nine water supply wells located within the base boundary.

3.3.2 GROUNDWATER CONTAMINATION

No groundwater samples were obtained specifically for investigation of this site. Base production wells were sampled in early 1986 as part of IRP Phase II, Stage 1 activities. Samples were analyzed for volatile and extractable organics, metals, oil and grease, and phenols. Although several metals were detected above the analytical detection limit (but below the limit of quantification), no evidence of contamination was noted.

3.4 SURFACE WATER

3.4.1 FLOW RATES

No surface water samples were obtained specifically for investigation of this site. No major streams flow through or are adjacent to the site. Hutchinson Creek is approximately 1 mile east of the site.

3.4.2 CONTAMINANT LOADS

No surface water samples were obtained specifically for investigation of this site. No major streams flow through or are adjacent to the site. Hutchinson Creek is approximately one mile east of the site.

3.5 RECEPTORS

3.5.1 HUMAN

There are no potential receptors evident at the Entomology Building 440 site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

3.5.2 WILDLIFE

There are no potential receptors evident at the Entomology Building 440 site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

IV. DATA ANALYSIS/RISK ASSESSMENT

4.1 SOILS

Two soil borings (plus a background boring) were drilled at the Entomology Building 440 site to determine whether

J-12-10

pesticide/herbicide contamination had resulted from past entomology shop practices. The two borings were located near a concrete pad southeast and down slope of the building. The pad may have been used for mixing or loading chemicals.

No significant contamination was found in any of the samples, nor is there visual evidence or odor around the site that would indicate contamination.

4.2 GROUNDWATER

Groundwater samples were not collected at this site.

4.3 SURFACE WATER

Surface water samples were not collected at this site.

4.4 AIR

Air samples were not collected at this site.

4.5 SUMMARY

Risk assessments are conducted to better understand the nature of chemical releases from a site, the potential pathways of human exposure, the degree to which releases (if any) could violate applicable standards and criteria, and a measure of the potential threat to public health as a result of such releases.

Based on analysis of the available data, there is no substantial current or future risk to public health resulting from the Entomology Building 440 site. No source of contamination was detected, and therefore there is little probability of chemical releases to environmental transport media such as soil, groundwater, surface water, or air. Because no contamination source or environmental pathways exist, there is little or no probability of human exposure or risk to public health associated with the site.

V. SELECTED ACTION

Three soil borings were completed near Entomology Building 440, one upgradient from the site to establish background levels and two at the concrete pad suspected of being the mixing location. Samples indicate no significant pesticide contamination of the soil in the areas.

J-12-11

5.1 ALTERNATIVES EVALUATION

Alternatives considered for the Entomology Building 440 site include:

1. No further action: No significant concentrations of contaminants were detected at the site, and no threat to the environment exists, so no further action need be taken.
2. Additional soil sampling: Sampling would determine whether other areas around Building 440 are contaminated from entomology activities.

5.1.1 THE SELECTED ACTION

The no further action alternative was selected, based on the results of IRP Phase II, Stage 1 study. No significant contamination was detected at the sampled locations, and no other contamination is believed to exist at the site.

This alternative was proposed in the IRP Phase II, Stage 1 Report (AeroVironment, 1987), and the California Department of Health Services and the Regional Water Quality Control Board have concurred with the "no action" alternative.

5.2 CONSISTENCY WITH ENVIRONMENTAL LAWS

5.2.1 ARAR COMPLIANCE

None of the samples collected at the Entomology Building 440 site had concentrations of contaminants that approached or exceeded applicable or relevant federal or state standards or guidelines for the protection of human health and the environment. Therefore, no regulatory requirements for further investigative or remedial actions are triggered.

Federal, state, and local laws, regulations, standards, policies, and criteria considered include the Resource Conservation and Recovery Act, the Clean Air Act, the National and California Ambient Air Quality Standards, the Department of Transportation Hazardous Material Transport rules, Federal Water Quality Criteria, the National Environmental Policy Act, the California Environmental Quality Act, federal and state worker health and safety requirements, National Pollution Discharge Elimination System requirements, EPA's groundwater strategy, the California Health and Safety Code, the California Hazardous Wastes Control Act, the California Administrative Code (Titles 22 and 23), the

California Applied Action Levels for Toxic Waste Sites, and applicable local ordinances and requirements.

VI. REGULATORY AGENCY AND PUBLIC INVOLVEMENT

6.1 REGULATORY AGENCIES

Federal, state, and local regulatory agencies have provided review and comment on IRP activities at Beale AFB since the initiation of the program in 1983. Involved agencies include the U.S. Environmental Protection Agency (EPA), the California Department of Health Services (DHS), the Central Valley Regional Water Quality Control Board (RWQCB), and the Yuba County Department of Health Services.

In late 1986, copies of the draft IRP Phase II, Stage 1, report recommending no further action at the Entomology Building 440 site were distributed to the agencies for review and comment. DHS and the RWQCB provided written comments (DHS, 1987; RWQCB, 1987). These comments were responded to on a point-by-point basis in letters to DHS and RWQCB from the Beale AFB Commander (Department of the Air Force, 1987a and 1987b).

Agency comments were also considered in finalization of the IRP Phase II, Stage 1 report (AeroVironment, 1987). Comments on the Entomology Building 440 site indicate that DHS and the RWQCB generally concur with the recommended no further action alternative. This No Further Action Decision Document will be distributed to the agencies for formal concurrence.

6.2 PUBLIC INVOLVEMENT

Public involvement regarding IRP issues at Beale AFB has been coordinated by the Wing Public Affairs Office. Once the Record of Decision regarding no further action at the Army Biological Production Site has been approved, the appropriate public notification and review processes will be conducted.

6.3 RESPONSES TO ALL PUBLIC COMMENTS

All public comments will be addressed following public notification and review processes as described in Section 6.2.

REFERENCES

Engineering Science. Installation Restoration Program - Phase I - Record Search, Beale Air Force Base, California. Prepared for the United States Air Force Strategic Air Command. April 1984.

AeroVironment, Inc. Installation Restoration Program - Phase II - Confirmation/Quantification - Stage 1, Beale Air Force Base, California. Prepared for Headquarters Strategic Air Command/Command Surgeon's Office. May 1987.

California Department of Health Services (DHS), 1987a. Letter from Gunther L. Sturm, Senior Sanitary Engineer, Sanitary Engineering Branch, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. January 29, 1987.

California Regional Water Quality Control Board, Central Valley Region (RWQCB), 1987a. Letter from Karen A. O'Haire, Chief, North Valley Regulatory Unit, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. March 24, 1987.

Department of the Air Force, 1987a. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to David Wang, Toxic Substances Control Division, Department of Health Services. June 10, 1987.

Department of the Air Force, 1987b. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to Karen O'Haire and Mike Floyd, Regional Water Quality Control Board. June 11, 1987.

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

SUMMARY OF ALTERNATIVE SELECTION

BEALE AIR FORCE BASE
MARYSVILLE, CALIFORNIA
SITE NO. 17
BEST SLOUGH

UNITED STATES AIR FORCE
OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL)
TECHNICAL SERVICES DIVISION (TS)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

J-17-1

TECHNICAL DOCUMENT TO SUPPORT
NO FURTHER ACTION

I. BASE/INSTALLATION/FACILITY

Beale Air Force Base
Installation Restoration Program
Best Slough, Site No. 17

II. NAME AND LOCATION

Best Slough, Site No. 17
Beale Air Force Base
Yuba County
California

III. STATEMENT OF BASIS

This decision is based upon the Installation Restoration Program (IRP) Phase I, Phase II, Stage 1, and Stage 2-1 studies conducted at Beale Air Force Base. Final reports on these studies are dated April 1984, May 1987, and August 1989, respectively.

IV. DESCRIPTION OF THE SELECTED REMEDY

Based on the current conditions at the Best Slough site, I have determined that no significant risk or threat to public health or the environment exists. Therefore, I have determined that no further action is required.

V. DECLARATION OF CONSISTENCY WITH CERCLA AS AMENDED BY SARA AND THE NCP

I have determined that the selected remedy of no further action is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate, and is cost effective. Contaminant levels at the site were determined to present no imminent or substantial threat to human health or the environment. No treatment or further actions are necessary.

United States Air Force

State of California

U.S. Environmental Protection Agency

I. INTRODUCTION

This document summarizes the rationale for no further action (NFA) at the Best Slough site (Site No. 17) at Beale Air Force Base (AFB), Marysville, California. This section provides a description of the site. Additional sections describe site history, current site status, including presence or absence of contaminants, and the data analysis that led to the NFA decision. The last two sections explain the NFA decision and describe regulatory agency and public involvement in the decision.

1.1 SITE LOCATION AND DESCRIPTION

1.1.1 LOCATION, ADDRESS

The Best Slough site (Site No. 17) is located on Beale AFB in Yuba County, 10 miles east of Marysville, California. The site is south of Gavin Mandry Road near the two bridges west of the base housing area and east of Landfill No. 3 (see Figure J-17-1).

The south border of the base is slightly over 1 mile south of the site, and the east border is approximately 2 miles to the east.

1.1.2 AREA OF SITE, TOPOGRAPHY, LOCATED IN FLOOD PLAIN

The elevation of the Best Slough site is approximately 150 feet above sea level. The site is wooded and includes four shallow trenches.

1.1.3 ADJACENT LAND USES

The area around the base is sparsely populated, and the primary land use is agriculture.

1.1.4 LOCATION AND DISTANCE TO NEARBY POPULATIONS

The base housing area, inhabited by approximately 6,000 people, is located about 1 mile east of the site. Other cities and towns in the area include Marysville, Yuba City, and Olivehurst to the west, and Wheatland to the south.

1.1.5 GENERAL SURFACE AND GROUNDWATER RESOURCES

Best Slough and its source, Dry Creek, flow southwestward to join the Bear River approximately 10 and 11 miles southwest of the base, respectively.

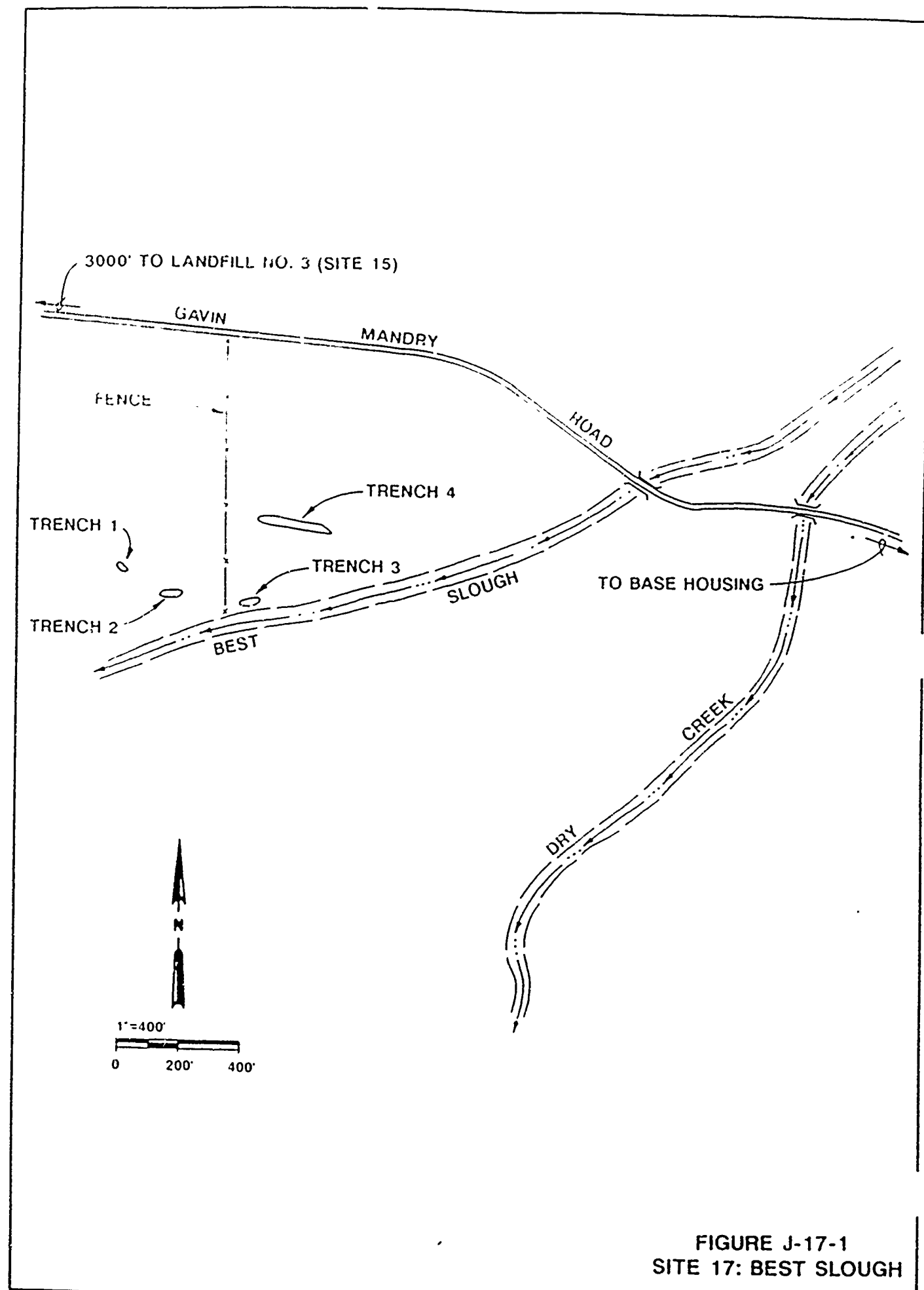


FIGURE J-17-1
SITE 17: BEST SLOUGH

1.1.6 SURFACE AND SUBSURFACE FEATURES

The site consists of four depressions or trenches in the ground, one of which contains approximately 25, and another which contains approximately 10 empty 55-gallon drums.

II. SITE HISTORY

2.1 DESCRIBE SITE HISTORY IN TERMS OF:

2.1.1 HOW SITE WAS ESTABLISHED

This site was added to the IRP investigation because empty drums were discovered in trenches 50 feet west of the slough in January 1985. The drums are badly rusted and deteriorated. No information is available on what, if anything, the drums contained or when they were placed here.

2.1.2 PERIOD OF OPERATION

No information is currently known regarding the period of operation.

2.1.3 HISTORY OF OWNERSHIP

No information is currently known regarding the history of ownership.

2.1.4 SITE USES OVER PERIOD OF OPERATION

No information is currently known regarding the site uses over the period of operation.

2.1.5 TYPE OF PERMITS APPLIED FOR AND/OR APPROVED, PERMITTING AUTHORITY

No information is currently known regarding permits related to the site.

2.1.6 HISTORY OF RELEASES

No information is currently known regarding a history of releases.

2.1.7 WASTE CHARACTERISTICS

This site was not included in the IRP Phase I Records Search and did not receive a HARM score. The site was sampled

and characterized as part of the Beale AFB IRP Phase II, Stage 1, study. No significant contamination was detected at the site (AeroVironment, 1987). A magnetic geophysical survey for buried drums was conducted at Site 17 during IRP Stage 2-1 (CH2M HILL, 1989). No sampling was conducted at Site 17 during Stage 2-1.

III. CURRENT SITE STATUS

3.1 PHYSIOGRAPHY AND CLIMATOLOGY

Beale AFB is located in the eastern part of the Sacramento Valley which, together with San Joaquin Valley to the south, constitutes the Great Central Valley of California. The Great Valley extends from Bakersfield in the south to Redding in the north. It is about 60 miles across, and is bordered to the east by Sierra Nevada Foothills and to the west by the Coast Ranges.

Beale AFB displays characteristics of both the Great Valley and the Sierra Nevada geomorphic provinces. The western portion of the base is relatively flat grassland, characteristic of the Great Valley. The eastern areas of the base consist of gently sloping hills, which are the foothills of the Sierra Nevada.

The elevation of Beale AFB ranges from 80 to 90 feet above the National Geodetic Vertical Datum of 1929 (NGVD) along the western and southwestern boundary, to more than 400 feet in the northeastern part of the base. The rise in elevation occurs along gently sloping hills common to the Sierra Nevada Foothills, which rise gradually to over 13,000 feet NGVD at the Sierra Nevada crests.

The Sacramento River drains the Sacramento Valley flowing southerly to the Sacramento-San Joaquin Delta for eventual discharge through San Francisco Bay into the Pacific Ocean. The Feather River, a tributary of the Sacramento River, flows southward west of the base. Both the Yuba River to the north of Beale Air Force Base, and the Bear River to the south, drain from east to west into the Feather River. Several small creeks flow from east to west across the base and converge with either the Bear River or the Feather River, southeast of the base.

The Beale AFB area climate is fairly typical of the Great Central Valley. Mean winter temperatures (November through April) are in the mid-40s (degrees Fahrenheit) to mid-50s, with winter lows in the 20s and winter highs in the 70s and

80s. Mean summer temperatures (May through October) are in the mid-60s to upper 70s, with summer highs greater than 100°F and summer lows in the high 40s and low 50s.

Annual precipitation fluctuates widely in California, with drought conditions followed by heavy rainfall years, and vice versa. The mean annual precipitation rate for the Beale AFB area is 23.1 inches, based on data from 1960 to 1985. Almost 95 percent of this rainfall occurs during the rainy period from October to April.

3.2 SOILS

3.2.1 SOIL DESCRIPTION

The Auburn-Sobrate-Las Posas Soil Association occurs on the eastern portion of the base and is associated with the Sierra Nevada pre-Tertiary basement complex. It is a shallow, gravelly, and rocky soil formed on decomposing metamorphic, igneous, and sedimentary rocks. It is a relatively immature soil, due to the high relief and rapid erosion of the Sierra Nevada.

3.2.2 SOIL CONTAMINATION

The IRP Phase II, Stage 1 site investigation consisted of four soil borings around the perimeter of the large trench containing the rusting drums. In addition, one boring was drilled 220 feet west of this trench, and the background boring was located along the fence at the northwest edge of the site (see Figure J-17-2). Two surface hand-auger samples were also collected from each of three trenches.

Samples from these borings were collected at 5-foot and 15-foot depths and analyzed for oil and grease, volatile organic compounds, total phenolics, and pesticides herbicides. Phase II, Stage 1 sampling was conducted on October 22 and 23, 1985. Table J-17-1 shows the laboratory results for these samples. No detectable concentrations of any of the analytes were found.

3.3 GROUNDWATER

3.3.1 HYDROLOGIC SETTING

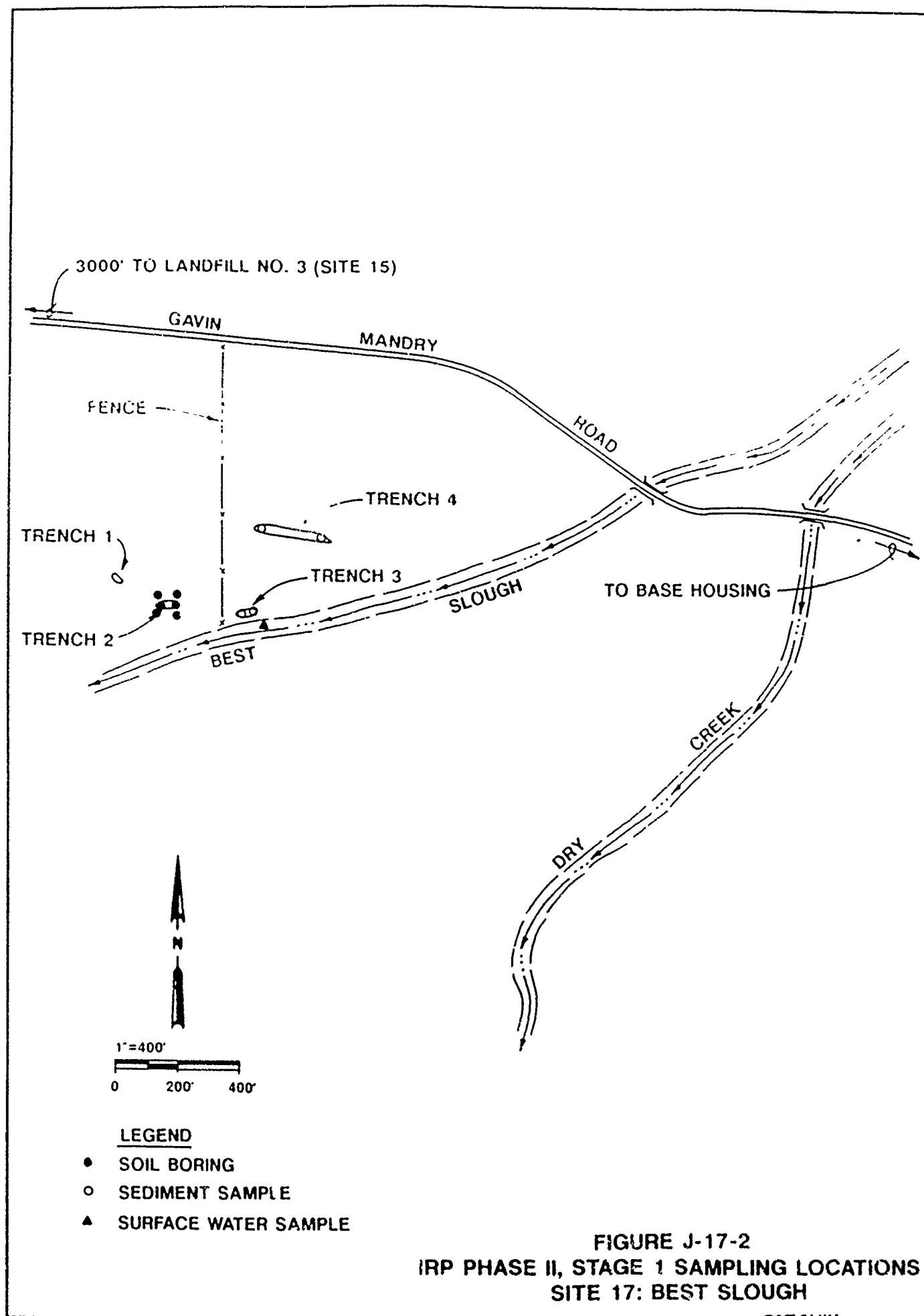
Beale AFB is located within the Sacramento Basin Hydrologic Area along the eastern basin margin. Groundwater movement along this margin, at the turn of the century, was from the Sierra Nevada Foothills in the east toward the Feather and

Table J-17-1
Soil Sampling Results
Site 17 - Best Slough

| SITE 17 - BEST SLOUGH
Aeron Report 8 0511-092 & 0510-048 | | | Sampled 11/21/83 (hand auger samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20
Sampled 10/22/83 (auger rig samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20 | | | Sampled 11/21/83 (hand auger samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20
Sampled 10/22/83 (auger rig samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20 | | | Sampled 11/21/83 (hand auger samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20
Sampled 10/22/83 (auger rig samples) for Oil & Grease, Phenols, 209 PAH and BHTO/PAH20 | | |
|-------------------------------------------------------------|--------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|
| INSTRUMENT | IN | DEPTH (FT) DB | MECHANICAL | Methylene Chloride | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE | trans-Chloro-1,2-DCE |
| 810813 | 17-1-H | 0.5 <100 | <1 | 0.004 | 0.00048 | 0.00048 | 0.00048 | 0.00048 | 0.00048 | 0.00048 | 0.00048 |
| 810814 | 17-2-H | 0.5 <100 | <1 | 0.004 | 0.00032 | 0.00032 | 0.00032 | 0.00032 | 0.00032 | 0.00032 | 0.00032 |
| 810815 | 17-3-H | 0.5 <100 | <1 | 0.002 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 |
| 810816 | 17-4-H | 0.5 <100 | <1 | 0.002 | 0.00031 | 0.00031 | 0.00031 | 0.00031 | 0.00031 | 0.00031 | 0.00031 |
| 810817 | 17-5-H | 0.5 <100 | <1 | 0.002 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 |
| 810818 | 17-6-H | 0.5 <100 | <1 | 0.002 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00037 |
| 810819 | 17-1-S | 5 <100 | <1 | 0.016 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| 810820 | 17-1-S | 15 <100 | <1 | 0.01 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
| 810821 | 17-2-S | 5 <100 | <1 | 0.006 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| 810822 | 17-2-S | 15 <100 | <1 | 0.02 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 |
| 810823 | 17-3-S | 5 <100 | <1 | 0.004 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 | 0.0008 |
| 810824 | 17-3-S | 15 <100 | <1 | 0.012 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 810825 | 17-4-S | 5 <100 | <1 | 0.007 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| 810826 | 17-4-S | 15 <100 | <1 | 0.02 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 810827 | 17-5-S | 5 <100 | <1 | 0.008 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 | 0.0007 |
| 810828 | 17-5-S | 15 <100 | <1 | 0.009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| 810829 | 17-6-S | 5 <100 | <1 | 0.029 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 |
| 810830 | 17-6-S | 15 <100 | <1 | 0.015 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |

Note: Only those results reported at concentrations above detection are presented.

Source: IRP Phase II, Stage 1 Final Report, AeroVironment, 1987. The DOHS TTLC for TCE is 2040 µg/g.



Sacramento Rivers to the west. The river system thus served as discharge points for the groundwater. As a result of extensive groundwater extraction, primarily for crop irrigation since the turn of the century, the major discharge for the groundwater has been through pumping. This has altered the direction of groundwater movement in many places throughout the Sacramento Valley, including areas near Beale AFB. The rivers no longer serve as groundwater discharge points. In fact, water from the river channels recharge the groundwater system.

Another source of recharge to the regional groundwater reservoir is along formation outcrops in the Sierra Nevada Foothills. Percolation of rainwater or irrigation waters through these materials reaches the groundwater reservoir. However, only lands with sufficiently permeable soil will permit percolation.

In the Sacramento Valley, groundwater occurs under unconfined and confined conditions. Holocene deposits, such as flood plains and alluvial fans, usually contain unconfined groundwater, except when the sediments are overlain by clayey (flood plain) materials. In older materials, the water may be unconfined at shallow depths and completely confined at greater depths. The depth to the water varies from less than 10 feet in the central part of the valley to almost 100 feet along valley margins.

Beale AFB straddles the eastern groundwater basin margin. A pumping trough is located south-southwest of the base, bordered by the Yuba, Feather, and Bear Rivers. Groundwater flow is predominantly westerly, with the possibility of localized gradients to the northwest and southwest.

Recharge to the groundwater reservoir at Beale is ultimately from instream percolation from the Yuba River, north of the base, manifested as groundwater inflow from the north, northwest, and northeast. Recharge may also occur from infiltration of precipitation, irrigation waters, and intermittent creeks. These latter recharge sources would strongly depend on the presence of hardpan, since hardpan severely restricts vertical movement of water.

Discharge of groundwater from the aquifer system occurs mainly from pumping. At Beale, groundwater is pumped from nine water supply wells located within the base boundary. These wells are located approximately 6 miles northwest of Site 17.

3.3.2 GROUNDWATER CONTAMINATION

No groundwater samples were obtained specifically for investigations of this site. Four monitoring wells were sampled during Phase II, Stage 1, and Stage 2-1 at Site 15 (Landfill No. 3), located 3,000 feet west (downgradient) of Site 17. Samples were analyzed for purgeable halocarbons, purgeable aromatics, semivolatile organics, ICP metals, arsenic, lead, mercury, selenium, and general water quality parameters. Although several metals and arsenic were detected above the analytical detection limit, no evidence of contamination was noted.

3.4 SURFACE WATER

3.4.1 FLOW RATES

The flow rates of Best Slough and Dry Creek are currently unknown.

3.4.2 CONTAMINANT LOADS

During Phase II, Stage 1, one surface water sample was collected from Best Slough near the trenches (Table J-17-2). The volatile organic compound sample collected during the first sampling round in November 1985 was not analyzed by EPA Method 602 within the specified holding time due to a laboratory instrument malfunction. Another volatile organic compound sample was taken and analyzed in January 1986 to provide a valid data set. No volatile organic compounds were detected. Results are presented in Table J-17-2.

3.5 RECEPTORS

3.5.1 HUMAN

There are no potential receptors associated with the Best Slough site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

3.5.2 WILDLIFE

There are no potential receptors associated with the Best Slough site. Contaminants were undetected or at low concentrations that do not represent a threat to groundwater, surface water, or air quality.

Table J-17-2. Surface Water Sampling Results from Site 17, Best Slough.

| | 17-1-W1
11/19/85 ¹
8511-043 ² | 17-1-W2
4/16/86 ¹
8604-037 ³ |
|--------------------------------------|-----------------------------------------------------------|----------------------------------------------------------|
| 601 Results (µg/l) | | |
| Chloromethane | ND | ND |
| Bromomethane | ND | ND |
| Diachlorodifluoromethane | ND | ND |
| Vinyl chloride | ND | ND |
| Chloroethane | ND | ND |
| Methylene chloride | 1.5* | ND |
| Trichlorofluoromethane | ND | ND |
| 1,1-DCE | ND | ND |
| 1,1-DCA | ND | ND |
| trans-1,2-DCE | ND | ND |
| Chloroform | 0.3 | ND |
| 1,2-DCA | ND | ND |
| 1,1,1-TCA | ND | ND |
| Carbon tetrachloride | ND | ND |
| Bromodichloromethane | ND | ND |
| 1,2-Dichloropropane | ND | ND |
| trans-1,3-Dichloropropane | ND | ND |
| TCE | 0.3 | ND |
| Dibromochloromethane ^a | ND | ND |
| 1,1,2-Trichloroethane ^a | ND | ND |
| cis-1,3-Dichloropropane ^a | | |
| Chloroethylvinyl ether | ND | ND |
| Bromoform | ND | ND |
| Tetrachloroethane ^b | ND | ND |
| Tetrachloroethene ^b | | |
| Chlorobenzene | ND | ND |
| Dichlorobenzenes | ND | ND |
| Surrogate Recovery, % | 80 | 88 |
| Analysis Date: | 11/23/85 | 4/23/86 |
| 602 Results (µg/l) | | |
| Benzene | ND | ND |
| Toluene | ND | ND |
| Ethylbenzene | 0.5 | ND |
| Chlorobenzene ^a | ND | ND |
| Xylenes ^a | ND | ND |
| Dichlorobenzenes | ND | ND |
| Analysis Date: | 1/13/86 | 4/21/86 |
| % Surrogate Recovery | 93 | 94 |
| Oil & Grease (mg/l) | <0.1 | 1.9 |
| Phenols (µg/l) | 3 | 5 |
| Pesticide/Herbicides (µg/l) | ND | |
| Lindane | | 0.01 |
| 2,4-D | | 0.07 |

Footnotes:

*Typical laboratory background for methylene chloride is 1-5 µg/l.

a - These compounds coelute

b - These compounds coelute

1 - Date sampled

2 - Acurex report No., refer to sample No. 810774 (Phenols), 810771 (601), 810775 (Pesticide/Herbicide), and 810773 (Oil & Grease), beginning on page H-136 in Appendix H. The 602 sample was collected 19/9/86, refer to sample no. 810458 on page H-261 in Appendix H (report 8601-026).

3 - Acurex report No., refer to sample No. 906173 (Phenols), 906170 (601/602), 906171 (Pesticide/Herbicides), and 906172 (Oil & Grease), on pages H-303, 351, 313/334 (309A/309B) and 339, respectively, in Appendix H.

4 - Chlorobenzene and meta-xylene

5 - Ortho-xylene and para-xylene

ND - Not detected

Source: IRP Phase II, Stage 1 Final Report, AeroVironment, 1987.

IV. DATA ANALYSIS/RISK ASSESSMENT

4.1 SOILS

No evidence of soil contamination from drum disposal was found at the Best Slough site. Analyses of the soil samples collected at the site indicated no detectable concentrations of contaminants. Further, there were no odors, soil staining, or evidence of chemicals in or near the drums. The drums were badly rusted, but there was no evidence of chemical residue on the inner or outer surfaces. No labels were present to identify the original contents.

4.2 GROUNDWATER

Groundwater samples were not collected at this site. No monitoring wells exist at Site 17.

4.3 SURFACE WATER

No evidence of surface water contamination from drum disposal was found at the Best Slough site. Analyses of the surface water samples collected at Site 17 indicated 0.3 ug/l in one sample, and 0.01 and 0.07 ug/l of Lindane and 2,4-D in the other sample. Phenol was detected in both samples at 3 and 5 ug/l. Oil and grease were detected in one sample at 1.9 mg/l.

4.4 AIR

Air samples were not collected at this site.

4.5 SUMMARY

Risk assessments are conducted to better understand the nature of chemical releases from a site, the potential pathways of human exposure, the degree to which releases (if any) could violate applicable standards and criteria, and a measure of the potential threat to public health as a result of such releases.

Based on analysis of the available data, there is no substantial current or future risk to public health resulting from the Best Slough site. No source of contamination was detected, and therefore there is little probability of chemical releases to environmental transport media such as soil, groundwater, surface water, or air. Because no contamination source or environmental pathways exist, there

is little or no probability of human exposure or risk to public health associated with the site.

V. SELECTED ACTION

During Phase II, Stage 1 three trenches were investigated at Site 17 using hollow-stem auger and shallow hand-auger borings. No contamination was found in any of the soil samples. A surface water sample collected in the adjacent stream showed no contamination attributed to Site 17.

During Stage 2-1 a geophysical magnetic survey was conducted at four trenches at Site 17. The survey consisted of making magnetometer readings along grid lines spaced 20 feet. Results of this survey are shown on Figures J-17-3 and J-17-4. The only metal detections are at the exposed drums. No signs of buried drums were detected.

5.1 ALTERNATIVES EVALUATION

Alternatives considered for the Best Slough site include:

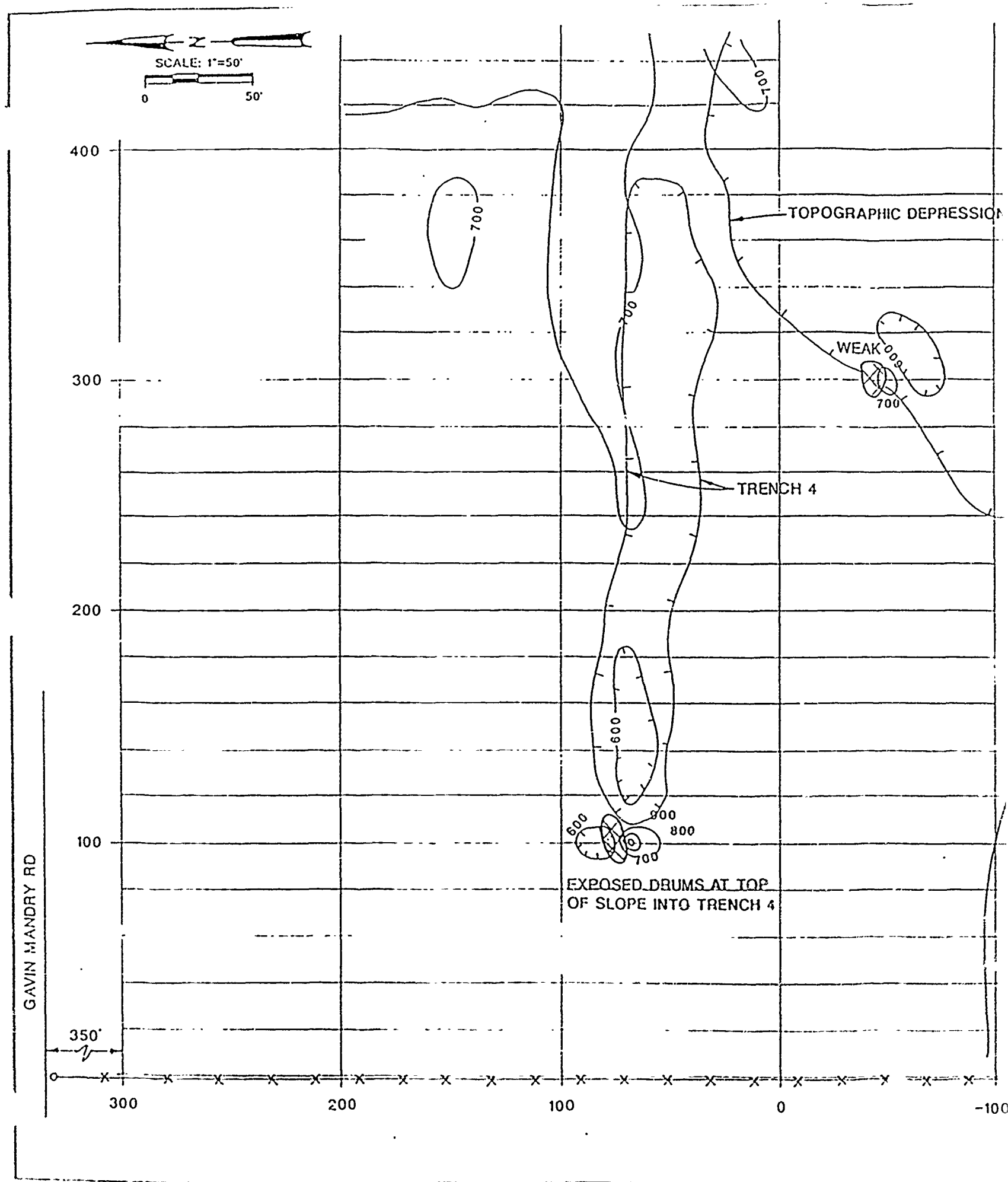
1. No further action: No contaminants were detected at the site, and no threat to the environment exists, so no further action need be taken.
2. Additional site investigation: Soil sampling and site excavation would examine a larger area around the trenches and/or refine the results obtained thus far, as well as uncover further evidence of the site's history.

5.1.1 THE SELECTED ACTION

The no further action alternative was selected, based on the results of IRP Phase II, Stage 1 and Stage 2-1 studies. No significant contamination or signs of additional buried drums were detected at the sampled locations, and no other contamination is believed to exist at the site.

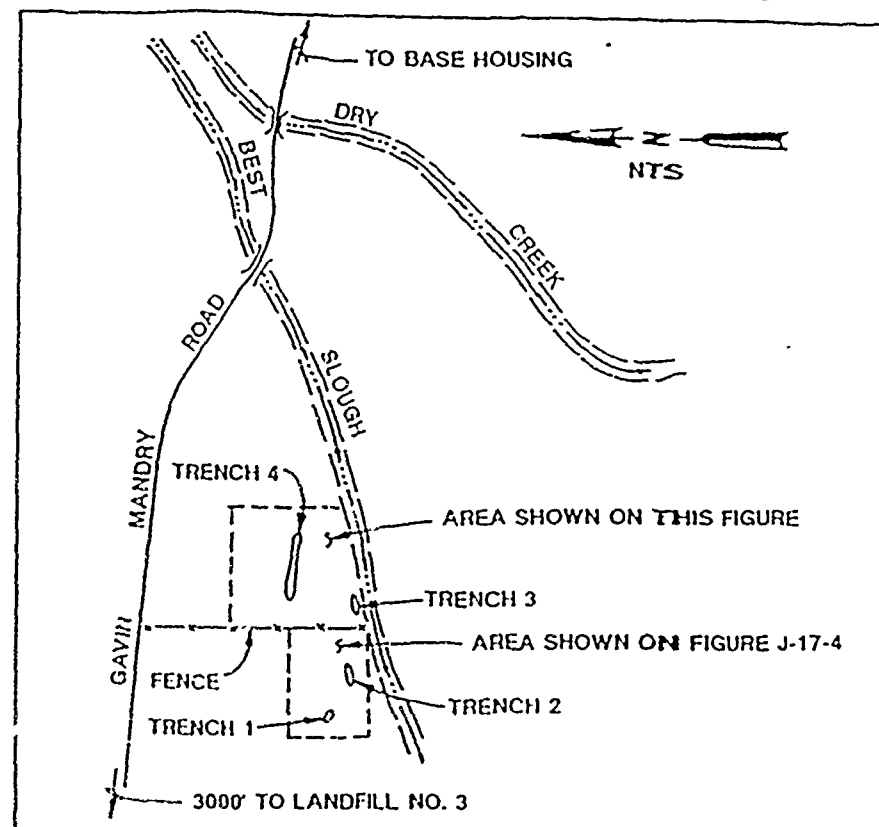
This alternative was proposed in the IRP Phase II, Stage 1 Report (AeroVironment, 1987). The California Department of Health Services generally concurred with the "no action" alternative, as long as the drums were removed and properly disposed. The Regional Water Quality Control Board recommended additional soil sampling and a survey of the depressions for buried objects. The conclusion of IRP study, and the alternative selected, is that no further action is necessary at this site.

J-17-14



INTERPRETED SOURCE AREAS
FOR MAGNETIC ANOMALIES

MAGNETIC CONTOUR INTERVAL 100 GAMMAS



LOCATION MAP

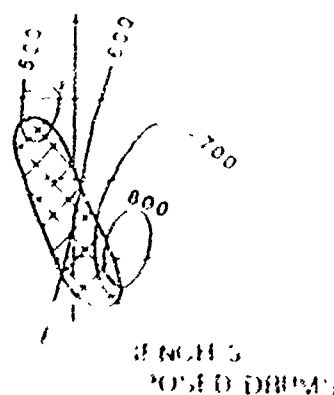


FIGURE J-17-3
TOTAL MAGNETIC FIELD INTENSITY AND INTERPRETED
SOURCE AREAS FOR MAGNETIC ANOMALIES
SITE 17: BEST SLOUGH, EAST OF FENCE

CE AREAS
MALIES

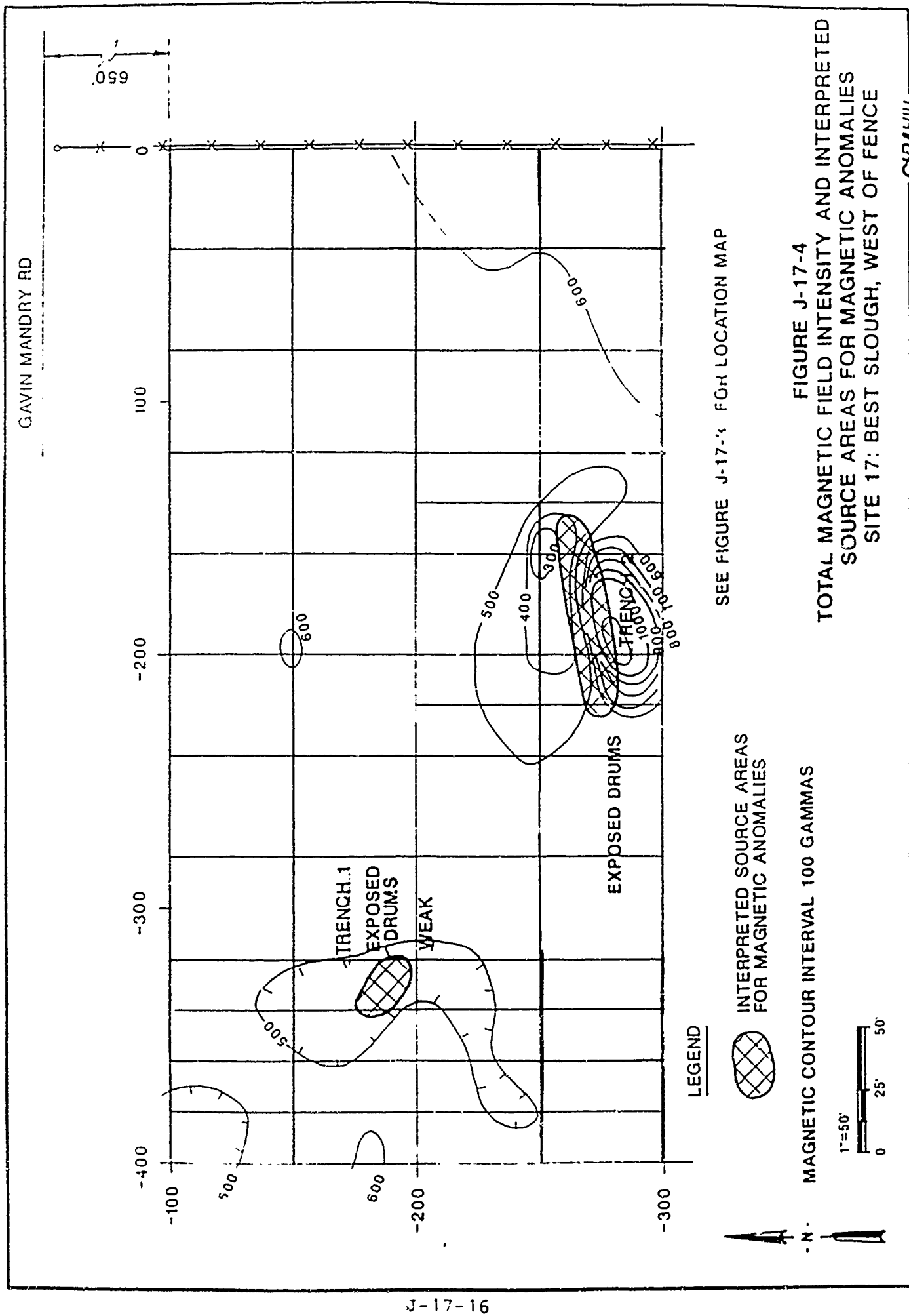
MMAS

FIGURE

FIGURE J-17-4

ERPRETED
ALIES
CE

III



5.2 CONSISTENCY WITH ENVIRONMENTAL LAWS

5.2.1 ARAR COMPLIANCE

None of the samples collected at the Best Slough site had concentrations of contaminants that approached or exceeded applicable or relevant federal or state standards or guidelines for the protection of human health and the environment. Therefore, no regulatory requirements for further investigative or remedial actions are triggered.

Federal, state, and local laws, regulations, standards, policies, and criteria considered include the Resource Conservation and Recovery Act, the Clean Air Act, the National and California Ambient Air Quality Standards, the Department of Transportation Hazardous Material Transport rules, Federal Water Quality Criteria, the National Environmental Policy Act, the California Environmental Quality Act, federal and state worker health and safety requirements, National Pollution Discharge Elimination System requirements, EPA's groundwater strategy, the California Health and Safety Code, the California Hazardous Wastes Control Act, the California Administrative Code (Titles 22 and 23), the California Applied Action Levels for Toxic Waste Sites, and applicable local ordinances and requirements.

VI. REGULATORY AGENCY AND PUBLIC INVOLVEMENT

6.1 REGULATORY AGENCIES

Federal, state, and local regulatory agencies have provided review and comment on IRP activities at Beale AFB since the initiation of the program in 1983. Involved agencies include the U.S. Environmental Protection Agency (EPA), the California Department of Health Services (DHS), the Central Valley Regional Water Quality Control Board (RWQCB), and the Yuba County Department of Health Services.

In late 1986, copies of the draft IRP Phase II, Stage 1 report recommending no further action at the Best Slough site were distributed to the agencies for review and comment. DHS and the RWQCB provided written comments (DHS, 1987; RWQCB, 1987). These comments were responded to on a point-by-point basis in letters to DHS and RWQCB from the Beale AFB Commander (Department of the Air Force, 1987a and 1987b).

Agency comments were also considered in finalization of the IRP Phase II, Stage 1 report (AeroVironment, 1987).

Comments on the Best Slough site indicate that DHS generally concurred with the recommended no further action alternative as long as the drums are properly removed and disposed. The RWQCB recommended additional soil sampling and a survey of the depressions for buried objects. This No Further Action Decision Document will be distributed to the agencies for formal concurrence.

In response to RWQCB comments, a one-day geophysical survey of the site was conducted to determine if buried drums are present. Four depressions at Site 17 were surveyed using magnetometer methods. Results of the survey indicate no signs of buried metal. The only positive signs of detected metal were the exposed drums, as indicated on Figures J-17-3 and J-17-4.

6.2 PUBLIC INVOLVEMENT

Public involvement regarding IRP issues at Beale AFB has been coordinated by the Wing Public Affairs Office. Once the Record of Decision regarding no further action at Site 17 has been approved, the appropriate public notification and review processes will be conducted.

6.3 RESPONSES TO ALL PUBLIC COMMENTS

All public comments will be addressed following public notification and review processes as described in Section 6.2.

REFERENCES

Engineering Science. Installation Restoration Program - Phase I - Record Search, Beale Air Force Base, California. Prepared for the United States Air Force Strategic Air Command. April 1984.

AeroVironment, Inc. Installation Restoration Program - Phase II - Confirmation/Quantification - Stage 1, Beale Air Force Base, California. Prepared for Headquarters Strategic Air Command/Command Surgeon's Office. May 1987.

California Department of Health Services (DHS), 1987a. Letter from Gunther L. Sturm, Senior Sanitary Engineer, Sanitary Engineering Branch, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. January 29, 1987.

California Regional Water Quality Control Board, Central Valley Region (RWQCB), 1987a. Letter from Karen A. O'Haire, Chief, North Valley Regulatory Unit, to Capt. Stephen W. Prawdzik, USAF Hospital/SGPB, Beale Air Force Base. March 24, 1987.

Department of the Air Force, 1987a. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to David Wang, Toxic Substances Control Division, Department of Health Services. June 10, 1987.

Department of the Air Force, 1987b. Letter from James F. Wilson, Colonel, USAF, Commander, Beale Air Force Base, to Karen O'Haire and Mike Floyd, Regional Water Quality Control Board. June 11, 1987.

APPENDIX K

AIR FORCE RESPONSE TO COMMENTS
BY CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
AND CALIFORNIA DEPARTMENT OF HEALTH SERVICES

APPENDIX K
AIR FORCE RESPONSES TO CALIFORNIA WATER
QUALITY CONTROL BOARD GENERAL COMMENTS

BEALE AIR FORCE BASE
FINAL DRAFT - RI REPORT

| <u>Comment</u> | <u>Air Force Response</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Do the previously generated reports and investigations satisfy the current RI/FS and QA/QC requirements? If not, in what areas are they inadequate? | This project did not specifically include a review of previous reports for compliance with the RI/FS and QA/QC specifications. However, all IRP reports have been thoroughly reviewed and scrutinized for compliance with requirements existing at the time each was prepared. The Air Force has expended considerable funds for draft reports and workplans to allow ample opportunity to judge adequacy of each report in this regard. |
| 2. It is obvious from the RI report's analysis results that there were a large quantify of laboratory-induced false positives. What steps are going to be taken in the future to eliminate the recurrence, i.e., new lab, more blank samples, extractant tested and certified, etc.? | CH2M HILL, IRP Contractor, has built a new laboratory that should minimize analytical problems. Additionally, the Air Force will ensure that a better QC program is performed in future efforts. |
| 3. Recommend looking at analytical laboratory's ventilation system or the label-marking procedure for field samples in an effort to eliminate some of the false positives. | In June 1990 CH2M HILL opened a new chemical laboratory with a positive outward pressure ventilation system. |

4. Because BAFB has more than just leaking underground tank sites, it is inappropriate to use the LUFT Manual for calculating clean-up levels or criteria for recommending no further investigations at particular sites.
5. A site should be removed from further investigation and remediation consideration at this stage of the RI/FS process only if all surface water, groundwater, and soil chemical parameters, metals, and compound concentrations are at or below the statistical background values and pose no impacts to the beneficial uses of the waters of the state.
6. When total metals or compound concentrations in a sample are less than the TTLC value, but are a factor of 10 or greater than the STLC value, then, the Title 22 Waste Extraction Test (WET) procedure should be performed and the soluble concentrations determined.
7. The short-term pump tests should be used only for determining a rough estimate of aquifer parameters and for estimating the approximate time required for a contaminant to travel off base.

The LUFT field manual Leaching Potential Analysis is only used for purposes of discussion in this report as noted in Section 4.1. It was used as a basis for comparison because TTLC values have not been established for TFH-gas and diesel, or BETX.

So noted.

In the future, Title 22 Waste Extraction Tests will be performed on IRP-generated waste that have compound concentrations greater than 10 times the STLC.

Agree. The text has been reviewed to make sure that "Rate and Direction of Flow" sections do not overstate the estimates. The short-term pump tests were used only for determining a rough estimate of aquifer parameters and subsurface geology in the immediate vicinity of the well. Additional language emphasizing this has been added to the beginning of Section 4 and Appendix E of the Final Report. This discussion also describes the assumptions that were made in the pump test analyses.

8. Groundwater flow direction arrows should be provided on each of the figures that show cross section locations.

Groundwater flow direction arrows have been added to plan view maps with cross section lines where data justified confidence in the direction.

AIR FORCE'S RESPONSES TO CALIFORNIA REGIONAL WATER
QUALITY CONTROL BOARD SPECIFIC COMMENTS ON
BEALE AIR FORCE BASE FINAL DRAFT

| <u>Comment</u> | <u>Air Force Response</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Section 2.3.2.2 Surface Water Quality - Why wasn't the upgradient surface water sampled? | In Section 5.2.23, Installation Background Sampling (p. 5-74) of the original draft workplan of April 1988, CH2M HILL proposed collecting and analyzing background surface water grab samples at three (minimum) incoming streams quarterly, provided water is present, for 1 year. At the direction of the Air Force, this background surface water sampling was removed from the final work plan of October 1988. |
| 2. Section 3.5.3.1, Soil Borings - In the last paragraph on page 3-31, it states that CH2M HILL will coordinate the soil cuttings (monitoring well and borings) disposal through Beale AFB's Environmental Engineering. Unless the cuttings are "thoroughly" analyzed, it is not recommended that they be disposed of in a landfill type fashion. We recommend that the cuttings be determined as "hazardous" or not in accordance with Title 22. If nonhazardous, they should be buried or spread adjacent to the borehole locations they came from. This method of cuttings disposal will prevent the consolidation of any potential | Cuttings suspected of being hazardous based on field screening during drilling were drummed on site. Drummed cuttings were disposed of under the direction of the Environmental Branch at Beale AFB. Thirty-six barrels of drummed drill cuttings were delivered to the Base Hazardous Waste Storage Facility; 25 of these barrels were disposed of as hazardous waste solid, N.O.S. Disposal was done through the Defense Reutilization and Marketing Office (DRMO), McClellan AFB, CA. Barrels disposed of through DRMO consisted of soil from borings 3-C-2SB, 3-C-3SB, 3-C-4SB, 3-C-6SB, 3-C-6SB, 3-C-8SB, 3-C-10SB, 18-C-1SB, 18-C-2SB, and 18-C-3SB. The remaining 11 barrels |

contaminants and the development of a new ground or surface water contaminant source.

were disposed of at the Beale AFB landfill (Site 15). On November 15, 1989, an agreement was reached between Thomas Hultin, Beale AFB, and Sue Yee, California Regional Water Quality Control Board (CRWQCB), to use the Base landfill for disposal of those barrels with a total fuel hydrocarbon value of less than 400 ppm. The barrels disposed of in the landfill consisted of soil from borings 3-C-5SB, 3-C-10SB, and 23-C-2SB. Cuttings that showed no indication of being hazardous at the time of drilling using field screening techniques were stored in plastic at the drill site until analytical results confirmed they were not hazardous. These cuttings were then spread out at the drill site.

3. Section 4.1.1, Discussion of Results for Site 1 - In our November 3, 1988, comments on the IRP State 2-1 Workplan, we requested a characterization of the first storm runoff event of the season. It does not appear that this was conducted in State 2-1 of the IRP.

Beale's Bioenvironmental Engineering Office sampled seasonal flow at the site and submitted the results to the CRWQCB area engineer.

4. Section 4.1.i.1.3, Analytical Results: Surface Water - The detection limits for some of the metals analyses are too high when compared to current water quality criteria and standards. Also, boron, mercury, and PCBs should have been included in the IRP analyses, since they have been detected in the discharge by earlier Air Force sampling and analysis.

Workplan and Quality Assurance Project Plans were approved by the State Department of Health Services and Regional Water Quality Control Board. This comment will be considered in future sampling efforts.

5. Section 4.1.2.1.3, Analytical Results - On page 4-60 under Sludge Ponds and Surface Soils, the following metals should have been analyzed for, using an appropriate atomic absorption method: Arsenic, Selenium, Hexavalent Chrome, and Lead.
6. Figure 4.1.2-10, TCE and Cyanide Concentrations - The figure is mislabeled; it is actually TCE and Arsenic.
7. Section 4.1.2.3.1, Zones of Contamination - On page 4-95, the second paragraph states that PCP was discharged onto the ground surface at each well head at 0.5 to 1 gallon of PCP per month. Is this pure PCP or it is more correct to say 0.5 to 1.0 gallons "Dowicide-G which contains PCP was discharged onto the ground at each well head"?
8. Section 4.1.2.3.2.2, Rate and Direction of Migration Based on Hydrogeologic Properties - On page 4-97, the first paragraph should use the groundwater gradient "i" near Site 13 rather than Site 3.
9. Section 4.1.3, Discussion of Results for Site 3 - If possible, when referencing aerial photographs for site investigations, copies of the aerial should be included in the report.
- Arsenic, selenium, total chromium, and lead were analyzed using the ICP metals methods in the approved workplan. Future sampling efforts will use the atomic absorption method.
- The figure has been corrected. It does show TCE and cyanide. The legend was mislabeled as TCE and arsenic.
- Dowicide-G containing pentachlorophenate was added to the wastewater from 1967 to 1984. Once a month, in order to flush the lines, 500 to 2,000 gallons of photowaste effluent was flushed into the ground at the wells or the filters at the plant according to the Phase I Records Search (Engineering Science). The concentration of Dowicide-G or pentachlorophenate in the effluent was not stated in the Records Search.
- This is a typographic error and has been corrected.
- The aerial photographs were not of sufficiently high quality to reproduce for the report. The explanation has been added to the text.

10. Section 4.1.3.1.3, Analytical Results - What fire fighting agents were used at the fire training burn pits? Were the appropriate chemicals analyzed for during this RI?

This and previous IRP reports discuss the history of fire training area. Potential contaminants were considered in the approved Workplan.

11. Section 4.1.3.3, Significance of Findings - Lead (Pb) was reported in three surface samples at total concentrations high enough to require soluble concentrations to be determined and compared to STLC values.

Analytical methods for this investigation were performed in accordance with the approved Workplan and Quality Assurance Project Plan. WETs will be performed in future sampling efforts for samples with total concentrations greater than 10 times the STLC.

12. Section 4.1.4.1.3, Analytical Results, page 4-147 - First paragraph indicates a zone (28 feet BGS) that had a pH of 3.6. Is it possible that a lens or an aquitard prevents the low pH liquid from migrating downward? if so, it should be determined what the lateral extent of the perched zone might be.

It is possible that a lens of impermeable material prevented the low pH liquid from migrating downward, but it is equally likely that the soil buffered the liquid as it percolated downward.

13. Section 4.1.9, Discussion of Results for Site 9: Entomology Building 2560 - First paragraph, page 4-211, states that rinsate and mixing pesticide containers have been discharged onto the gravel area and allowed to evaporate since 1981. Is this still the practice of the Entomology personnel? If so, it must be stopped.

This practice was stopped before this investigation began. A cement basin and berm were installed to replace the gravel basin August 1987, as discussed in Sections 1.3.3.2, 1.4.9.1, 1.9.1.4, 4.1.9, and 4.2.1 of the Final Draft Report.

14. Section 4.1.13.1.2, Site Hydrology - Table 4.1.13-2 was not clear which of the confined aquifers the aquifer properties were developed for, i.e., the shallow or deep aquifer.

The text has been modified to remove misunderstanding of "aquifers." The reference to average values has been removed, and a range of values presented.

15. Section 4.1.18, Discussion of Results for Site 18 - Bulk Fuel Storage Facility - In the field replicate for 18-C-10SS, the Table 4.1.18-3 indicates hazardous levels of beryllium. Is this a decimal problem or a paint chip being analyzed?

The results for barium of 122 mg/kg was incorrectly reported as the beryllium result; the actual beryllium result was less than 0.59 mg/kg. These mistakes have been corrected.

16. Section 4.1.22, Discussion of Results for Site 22: Abandoned Underground Tanks - Although quite burdensome, all abandoned, as well as operational, tanks will have to be inventoried and inspected as required under the California Underground Storage Tank Regulations.

So noted.

17. Section 6.2.16, Explosive Ordinance Disposal Area - It may be necessary to develop a monitoring and reporting program that satisfies the monitoring requirements of Title 23, Chapter 3, Subchapter 15 for the continued operation of the site as a disposal unit.

Beale AFB has submitted a Part A RCRA permit application for the EOD, and a Part B application is being prepared. No further permitting should be needed.

18. Section 6.2.24, Site 24: Landfill No. 4 - This site may be eligible for an exemption from the requirements of California's SWAT program if the following two requirements are satisfied: (1) The site contains less than 50,000 cubic yards in place refuse, and (2) no hazardous wastes are known or suspected of being discharged to the land-filled area.

So noted.

19. In Appendix I, Table I-4, Title 22 STLC values should have been included.

Table I-4 is for groundwater and surface water. STLC values are not applicable to water samples. Title 22 STLC values have been included in Table I-6 in the Final Report.

AIR FORCE'S RESPONSES TO CALIFORNIA DEPARTMENT OF HEALTH
SERVICES' COMMENTS ON BEALE AIR FORCE BASE FINAL DRAFT RI REPORT

| <u>Primary Concerns</u> | <u>Air Force Response</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <p>1. <u>Operable Units - Expedited Approach</u> - Section 4.2.2, page 4-513, describes the EPA definition of an Operable Unit.</p> <p>The following two main contaminated areas of concern should be placed on an expedited schedule for investigation and remediation. These two areas include the West Site Drainage Ditch (Sites 1, 5, and 21), and Landfill No. 1 area (Sites 2, 13, and 20). Beale should focus on expediting the remedial process at these two areas, while still addressing the remaining sites.</p> <p>An expedited response to prevent further migration of the contaminated groundwater should commence immediately at Landfill No. 1 area, due to the current and future public health and environmental exposure from this site (see primary concern #9). Further delay in controlling the migration of the groundwater plume emanating from Landfill No. 1 area will only result in a more costly remedial alternative.</p> | <p>So noted.</p> |

It may be possible to expedite the process by double tracking separate non-critical path portions of the process. For instance, at the Landfill No. 1 area, the Risk Assessment could begin while still defining the extent of the groundwater contamination. At the same time, preliminary selection of remedial alternatives could commence.

A critical path planning document would be beneficial in implementing this approach.

2. Contaminant Fate and Transport/Process Clarification

A) Section 1.1.3 should be written to reflect the process that Beale is following. Key elements of the RI, as well as the RA and FS, should be specified separately in Section 1.1.3. This approach will clarify and tie this RI report into the upcoming Risk Assessment and Feasibility Study, as well as provide more information for expedited response actions. It is also suggested that general report outlines be included for the RA and FS.

B) Contaminant Fate and Transport should be a key element for this RI. "Contaminant Fate and Transport" site specific sections should be included in Section 4. The Contaminant Fate and Transport sections should include contaminant persistence as well as contaminant migration. If applicable, sections of the RI report should describe estimated contaminant persistence in the

Comments 2A, B, and C are beyond the scope of this RI effort. These comments will be taken into consideration in future IRP efforts.

site-specific environment and physical, chemical, and/or biological factors for the media(s) of interest.

C) Contaminant migration (including velocities, time predictions, etc.) are predicted for areas where groundwater contamination exists. However, the same evaluation of contaminant migration is not predicted for soil contamination. The same assessment of contaminant migration prediction, if applicable, should be applied to the other media including air and soil (sediment and vadose zone).

3. Leaking Underground Fuel Tank (LUFT) Manual - The LUFT manual is referenced throughout the report. The LUFT manual does not take into consideration public health exposure when estimating cleanup levels. This limitation should be stated in the report (page 4-4). The LUFT referenced cleanup standards stated in the report may not be the adopted cleanup levels. Cleanup levels will be determined by a risk assessment process which incorporates site specific public health and ecological based exposure data.

The LUFT field manual Leaching Potential Analysis is used only for purposes of discussion in this report, as noted in Section 4.1. It was used as a basis for comparison because TTLC values have not been established for TFH-gas and diesel, or benzene, ethylbenzene, toluene, and xylene (BETX). We stated, "Where sample concentrations exceed derived standards, it should not automatically be assumed that additional investigation or remediation is required." We added for the Final Report, "Cleanup levels will eventually be determined by a risk assessment process which incorporates site-specific public health and ecological based exposure data."

4. Soluble Threshold Leaching Concentrations (STLC) - Title 22, STLC values should be referenced in the report and utilized as comparable guideline when applicable.

STLC is a different unit than TTLC and cannot be directly compared to soil concentrations in mg/kg. Analytical methods for this investigation were performed in accordance with the

An example is on page 4-342. Metals concentration detected in the soil are compared to the Total Threshold Limit Concentration (TTLC) values. The lead concentration of 527 mg/kg is compared to the TTLC of 1,000 mg/kg, and the report states this is not considered a hazardous waste according to the TTLC value. However, considering that the STLC for lead is 5 mg/l, and if a Waste Extraction Test (WET) is performed on this sample, the WET result may be greater than 5 mg/l. Therefore, the sample may be considered hazardous according to the STLC value.

It should also be mentioned in the report that TTLC and STLC values are not considered cleanup levels. Cleanup levels for contaminants of concern are determined on a site specific health and ecological basis during the RA and FS, and may be set at a level lower than TTLCs or STLCs.

An example is dioxin (page 4-89, Site 2). The majority of cleanup levels previously determined for dioxins have been set at, or below, 1 part per billion (ppb) utilizing the EPA's Toxic Equivalency Factor (TEF). The report states that because the TTLC is 0.01 mg/kg for tetrachlorodibenzo-p-dioxin (tetra CDD) and the detected concentration of total tetra CDD was 0.0017 mg/kg, the sediment sample is not a hazardous material. This statement infers that dioxin is not a concern, nor

approved Workplan and Quality Assurance Project Plan. WETs will be considered where appropriate in future investigation. We noted in Section 4.1 of the Final Report that TTLC and STLC values are not considered cleanup levels. Cleanup levels will eventually be determined by a risk assessment that incorporates site specific public health and ecological based exposure data.

Our statement concerning dioxin indicated only that the sample is approximately one-sixth of the TTLC for the TTLC standard tetra dioxin isomer and therefore is not a hazardous material by that criteria.

will it be addressed in the RA. Dioxins must be addressed in the RA and FS; therefore, cleanup levels for dioxins and furans will be determined for this site.

5. Dioxin Characterization - One dioxin/furan sample was analyzed for the Photowaste Treatment Ponds and one for the Emergency Holding Basin. Because dioxins/furans are a concern, and will be addressed in the RA and FS, additional sampling for dioxins/furans should be conducted to characterize the extent of the contamination.

Beale AFB plans to perform additional IRP work at these two sites in the future. Additional sampling for dioxins and furans will be considered at that time.

6. Data Base - A large volume of chemical (sampling points, analysis, validation, etc.) and physical (monitoring wells, location, construction information, etc.) data are being generated during this RI/FS process. These data should be placed on a data base for current and future reference, accessible by Beale as well as the regulatory agencies. In order for the public to have access to the administrative records for Beale, the repositories should contain hard copies of the data presented in the data base.

Hard copies of the data are presented in this RI Report are available upon request. Additionally, HSD/YAQ is in the process of upgrading an Information Management System that contains data on the contractual and technical aspects of many IRP projects.

7. Hydrogeological Characterization - The following comments are specific to Site 13. These comments should be considered for all the sites where known or expected groundwater contamination exists for revisions to the RI report. In addition, the following comments should be referenced for future well placement and construction. It is noted that some of the concerns listed below are

also listed in the recommendation section of the RI report. These comments were provided by Susan Timm, RG, of Region 1's Technical Services and Support Unit (TSSU).

A) The geology has not been defined sufficiently to determine thickness and extent of the uppermost aquifer. Additional wells with continuous sampling and geophysical logging are recommended for determining the subsurface geology. Detailed cross sections should be prepared depicting geology and water saturation data.

7A. Additional monitoring wells were recommended for Site 13 in Section 6 of the RI report, in order to further characterize the horizontal and vertical extent of contamination. However, more geological logging, geophysics, and cross sections will yield more data, but not necessarily more usable geologic information. The dual tube drilling method used in this investigation produced continuous immediate return of cuttings through a cyclone separator. Cuttings samples were generally taken approximately every 2 feet, which demonstrated the extreme heterogeneity of this alluvial sequence.

The groundwater system at Beale AFB is characterized by its alluvial geologic setting in which isolated coarse-grained stream channel deposits are contained within a matrix of fine-grained overbank deposits. There is no "aquifer" in a textbook sense. Groundwater tends to flow in relatively more permeable lenticular clayey and silty sands contained within a complex assemblage of sandy clays and sandy silts. Thus, rather than identifiable aquifers that may be correlated from place to place, the groundwater may be considered to flow in a single, large-scale heterogeneous system.

In such a setting, pump test results must be regarded as estimates and as a descriptive tool to help define the subsurface geology. Groundwater

analytical techniques were developed using simplifying assumptions. These include the assumption that aquifers (and groundwater flow paths) are horizontal, bounded by units capable of being described mathematically, are infinite in areal extent, of constant thickness, and are homogeneous and isotropic. Although techniques have been developed that deal with some departure from the simplified system described above, no technique fully addresses a system as complex as that at Beale AFB. In this situation, it has become standard practice to employ standard methods of pump test analysis, while recognizing that results are estimates only.

Hydraulic boundaries that show up on time-drawdown plots of short-term pump tests at Beale AFB tend to reflect the fact that the cone of depression is encountering geologic materials of varying permeability, rather than large-scale regional boundaries that would affect groundwater velocities and flow paths. Portions of the plot used to calculate aquifer parameters depended on judgement on a case-by-case basis. Factors included the desire to use late portions of the curve where possible, portions of longest time duration, or in certain cases the shallow rather than steep portion of the curve to derive conservatively high values of groundwater velocity. Again, the drawdown plots of short-term tests are mainly useful as illustrations of alluvial geology in the immediate vicinity of the well, including the presence of nearby materials of varying permeability, and as estimates only of groundwater parameters. The test that most

accurately portrayed subsurface groundwater conditions at Beale was the 72-hour test performed at Site 19, which tended to average out local heterogeneities.

Although a discussion of the geology and groundwater at Beale AFB is provided in Section 2, a summary of the main points of this discussion will be prepared and inserted into the introduction of Section 4 and Appendix E. This latter discussion will also describe the assumptions that were made in the pump test analyses.

B) The groundwater flow properties have not been defined adequately to determine flow direction. Additional wells and/or piezometers screened across the water table are necessary for determining horizontal groundwater flow direction. Flow nets showing horizontal and vertical flow direction should be prepared.

7B. Water table conditions do not exist for the most part at Site 13. Wells were screened across the uppermost permeable zones on the assumption that this is where potentially contaminated groundwater would most likely migrate. Because these zones lie at different vertical elevations, vertical flow components make it impossible to quantitatively derive horizontal flow components suitable for preparation of flow nets. However, data are certainly adequate to determine qualitatively the direction of flow. This is sufficient to begin remediation. Additional monitoring wells are recommended in Sections 4.2.3 and 6.2.13 to better define the extent of the TCE plume at Site 13 and further define the direction of flow.

C) Piezometers should be installed in permeable moist areas above the zone defined, at present, as the water table to determine if a perched zone exists above the "water table."

7C. Such piezometers would yield no useful information.

D) The Cooper-Jacob Method is designed for analyzing aquifer tests in confined aquifers. This method requires close spacing of the test well and observation well and/or a long pumping time. In order to use Cooper-Jacob, the well function "u" should be less than 0.01. Only pumping well 13-C-3 and observation well 13-A-2 was "u" less than 0.01. As indicated in the RI report, the transmissivity values would be approximated or composited values due to both the heterogeneity of the sediments, and the fact that the screens cross more than one isolated permeable zone.

Aquifer test results should be plotted on both log-log and semi-log graphs. It is unclear if the aquifer is confined, semi-confined, or unconfined. Use of the Cooper-Jacob method of analysis for unconfined or semi-confined aquifers may result in an over estimation of aquifer parameters due to delayed yield.

If the Cooper-Jacob straight line method of analysis is to be used, maximum drawdown in the aquifer should be less than 15 percent of the total saturated thickness.

Apparently the effect of partial penetration of the aquifer was not considered in the aquifer test analysis.

E) Placement of extraction wells should be based on capture zone analyses which require knowledge of groundwater flow direction, groundwater velocity, and geology.

7D. See general comments in 7A above. The heterogeneity of the system would also limit the usefulness of type curves (log-log plots). Pump test results should be regarded as estimates only. The aquifer is a large scale heterogeneous alluvial system, with thin, discontinuous permeable zones. Partial penetration corrections are normally made to counteract the effects of vertical flow components to the well during pumping. In the Beale AFB setting, horizontal stratification greatly diminishes the effects of vertical flow on the drawdown curve.

See Comment 7B above. Capture zone analyses would be estimates due to the complexity of the system and the limitations of the data. Additional data would not significantly reduce

F) Pumping the deep aquifer for aquifer tests is not recommended because contamination could be drawn from the upper aquifer into the lower aquifer.

G) The filter pack used in the monitoring wells was Monterey No. 3, while the screen slot size was either 0.010 or 0.020 inches. Plots of the grain size distribution of Monterey No. 3 indicate that none of this filter pack will pass through 0.010- slot or 0.020-slot screens. Slot sizes should be selected so that 5 to 10 percent of the filter pack can pass through the well screen during development. Procedures as described in Groundwater and Wells (Driscoll, 1986) on pages 438 through 443 should be followed to determine the appropriate filter pack and screen slot size for monitoring wells.

the uncertainty. However, capture zone analyses should be made and the extraction system should still be operated and monitored, with adjustments and refinements made as necessary according to observations of the results.

Agree in general, but must point out that the system is too complex to be divided into an "upper" and "lower" aquifer. The text has been revised to clarify this issue. In any case, no drawdown was observed in nearby wells after 4 hours of pumping in the deeper well.

The use of Lonestar No. 3 sand with 0.010-inch and 0.020-inch screen is standard practice in California. Basing filter material size on sieve analysis would be expensive and is unnecessary in monitoring wells as long as wells are properly developed and turbidity free water is obtained for sampling.

The procedures outlined on pages 438 through 443 of Groundwater and Wells (Driscoll, 1986) are designed to achieve maximum production in large capacity water wells. On these wells a feed tube is used to replace the filter pack material that is washed through the screen. Groundwater and Wells (page 722) notes that "Filter packing procedures recommended for water wells are not suitable for monitoring wells unless the hydraulic characteristics of the formation materials are similar to those of an aquifer." The sediments at Beale are predominantly fine grained with isolated sand lenses. Monitoring wells at Beale were carefully constructed and developed so that

groundwater samples taken from the wells are representative of aquifer conditions.

So noted.

8. Decision Documents - Currently, the Department's Region 1 is developing in-house procedures for review of Decision Documents. Comments on Appendix J will be forthcoming at a later date.

Beale AFB began providing bottled water to residents of Deep Violet Farms on August 27, 1990.

9. Alternate Water Supply - The Department recommends that Beale take the responsibility to provide an alternate water supply to the resident next to Landfill No. 1 (Site 13). It is recognized that Beale has periodically sampled the resident's well, and that the trichloroethane (TCE) results have consistently been below the federal and state Maximum Contaminant Level (MCL) of 5 ppb. However, considering the general direction and velocity of groundwater flow, detection of TCE off base, and the high groundwater concentration of TCE detected on base, it is probable that the concentration of TCE in the resident's well will increase in the future. Beale should offer an alternate drinking water supply to the residents prior to detecting TCE at above the MCL.

10. Soils Management Plan - A soils management plan, similar to that used by McClellan AFB, should be developed for Beale. This plan will facilitate communication and coordination within Beale on removal actions or interim remedial actions, as well as future construction projects where contaminated soil is encountered.

Beale AFB has begun development of a soils management plan as recommended.

The plan should outline the procedures for handling and temporary storage of CERCLA-contaminated soil.

The purposes of the plan are to:
(1) develop a decision document when encountering contaminated soil during construction projects,
(2) help coordinate construction projects with the Beale Environmental Management Office, (3) coordinate, when appropriate, with the proper regulatory agencies, and (4) develop a plan to handle and temporarily store CERCLA-related contaminated soil.

11. Page 6-2, Recommendations - West Side Drainage Ditch - Previous sampling results in the Stage 1 investigation reported TCE concentration above the MCL. In addition to commencing the RA and FS for this site, additional monitoring wells should be placed to define the groundwater plume.

So noted.

Secondary Concerns

1. Page 3-50, Section 3.6.2.3 - Toluene was detected in a majority of the soil samples throughout the base. The RI report determined that the toluene was probably a false positive. Could the electrical tape used to seal the soil sampled be the source of the toluene?

Air Force Comments

The false positive results for toluene may be due to the electrical tape used to seal the samples. This has been noted in Section 3.7.2.3. An experiment by AeroVironment, the previous IRP contractor at Beale, was cited. AeroVironment placed electrical tape in organic free water that was then analyzed and found to contain high levels of toluene.

2. Page 3-67, Section 3.7.1 - The report should state if the laboratories listed are accredited by the Department for hazardous waste testing.

Section 3.7.1. was modified to state that "All laboratories used are accredited by California Department of Health Services for hazardous waste testing."

3. Page 6-6, Recommendations - Battery Shop Dry Well - The abandonment of the "removal action" as described in the Health and Safety Code and CERCLA. Therefore, a workplan should be submitted to our office for review prior to commencement of any remedial action.

So noted.

4. Page 6-12, Recommendations - Photowaste Emergency Holding Pond

A) See Primary Concern No. 5 (Dioxins/furans)

See comment to Primary Concern No. 5

B) The uppermost aquifer has not been characterized at the site. The base of MW-19-C-1 was logged as sand and gravel; thus, TSSU interprets that the base of the uppermost aquifer in this area is not defined.

See general comments in 7A above, regarding the "uppermost aquifer" and the nature of the hydrogeological system. The groundwater system at Beale AFB is characterized by its alluvial geologic setting in which isolated coarse-grained stream channel deposits are contained within a matrix of fine-grained overbank deposits. There is no "aquifer" in a textbook sense. Groundwater tends to flow in relatively more permeable lenticular clayey and silty sands contained within a complex assemblage of sandy clays and sandy silts. Thus, rather than identifiable aquifers that may be correlated from place to place, the groundwater may be considered to flow in a single, large-scale heterogeneous system.

It is recommended that a monitoring well cluster of two wells approximately 150 feet east of boring 19-C-3SB be installed. This location is interpreted by TSSU to be nearly directly down-gradient from the basin.

It is also recommended that a monitoring well paired with MW-19-C-1 and screened at the bottom 10 feet of the uppermost aquifer be installed. The borehole drilled for this well should be drilled at least 7 feet into a clay bed before the base of the uppermost

Additional wells are not justified based on contaminant levels observed in the liner and soils beneath the

aquifer can be considered defined. This borehole should then be back-filled with grout or bentonite pellets to the level of the base of the uppermost aquifer before well construction is commenced.

5) Page 6-14, Abandoned Under-ground Storage Tanks - A meeting is scheduled in the near future with the Regional Water Quality Control Board, the Department, and the County to discuss the underground storage tank issue at Beale.

basin, especially considering the preponderance of fine-grained sediments between the basin and the groundwater. Contaminants noted in Site 19 wells were not part of the waste stream at the Emergency Holding Basin, and were not observed in the liner or subsurface soils. These contaminants appear to come from another source. Additional investigation should be directed toward finding this source.

So noted.